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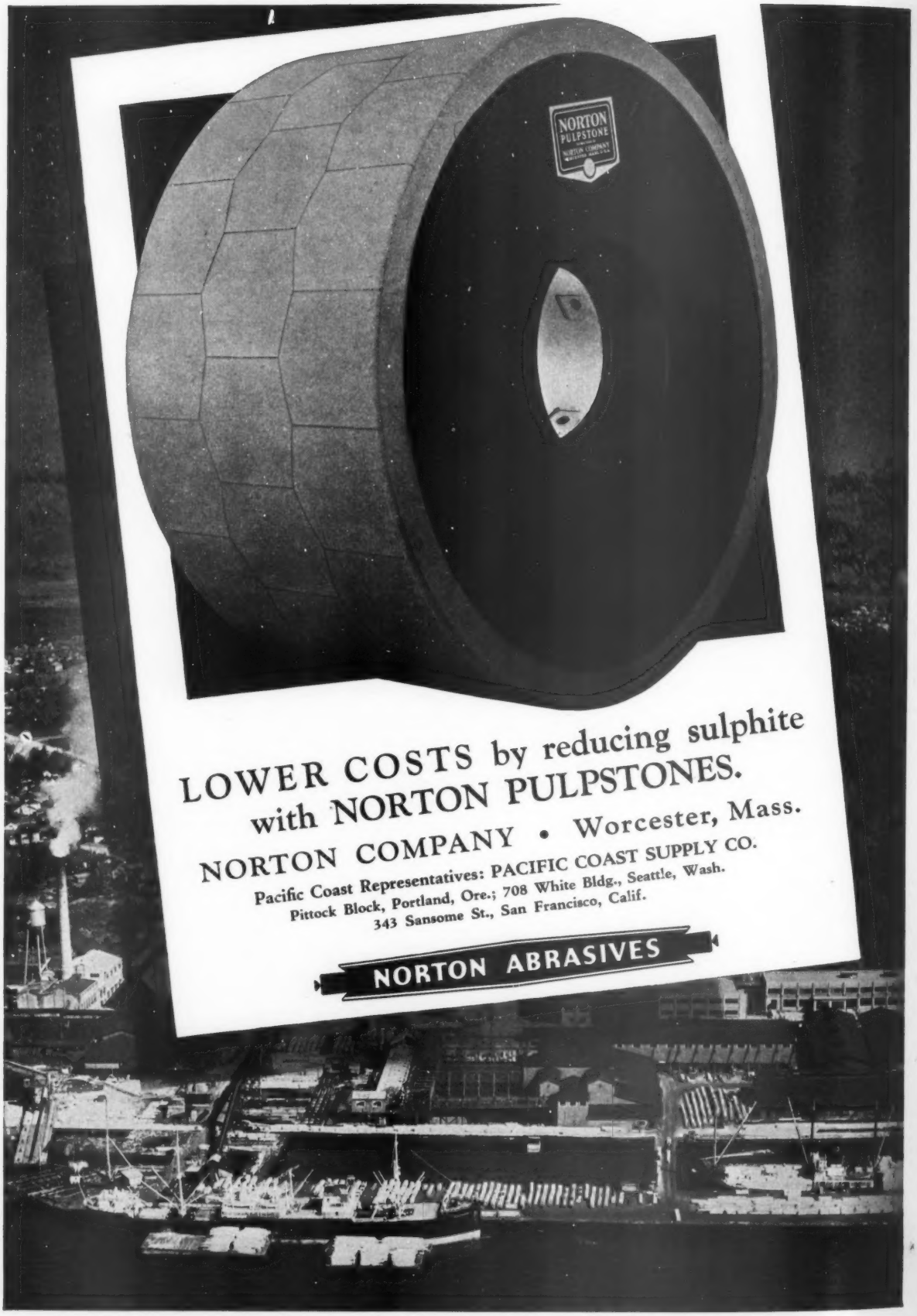
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Pacific Pulp & Paper Industry is published once a month, at 71 Columbia St., Seattle, Wash. Subscription: U. S. and Canada, $4.00; other countries, $5.00.
Entered as second class matter May 20, 1927, at the Postoffice at Seattle, under the Act of March 3, 1879.

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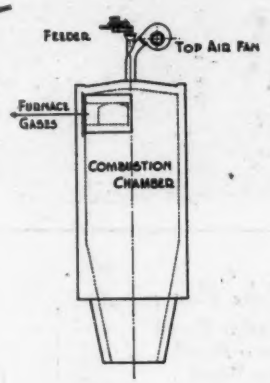

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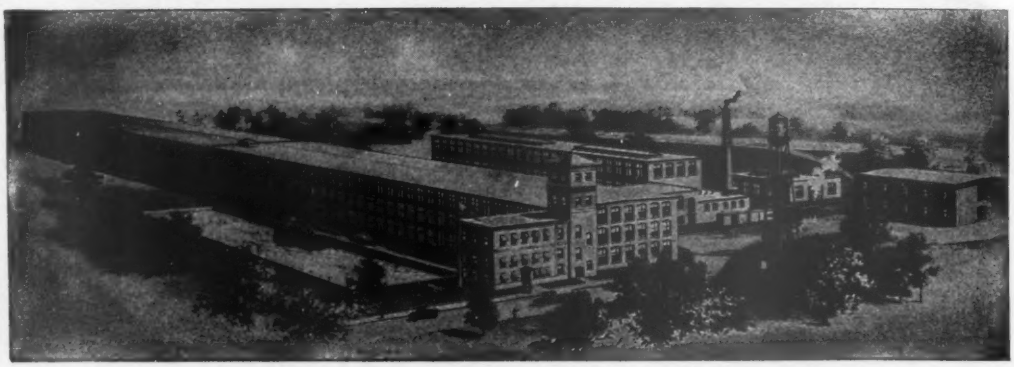

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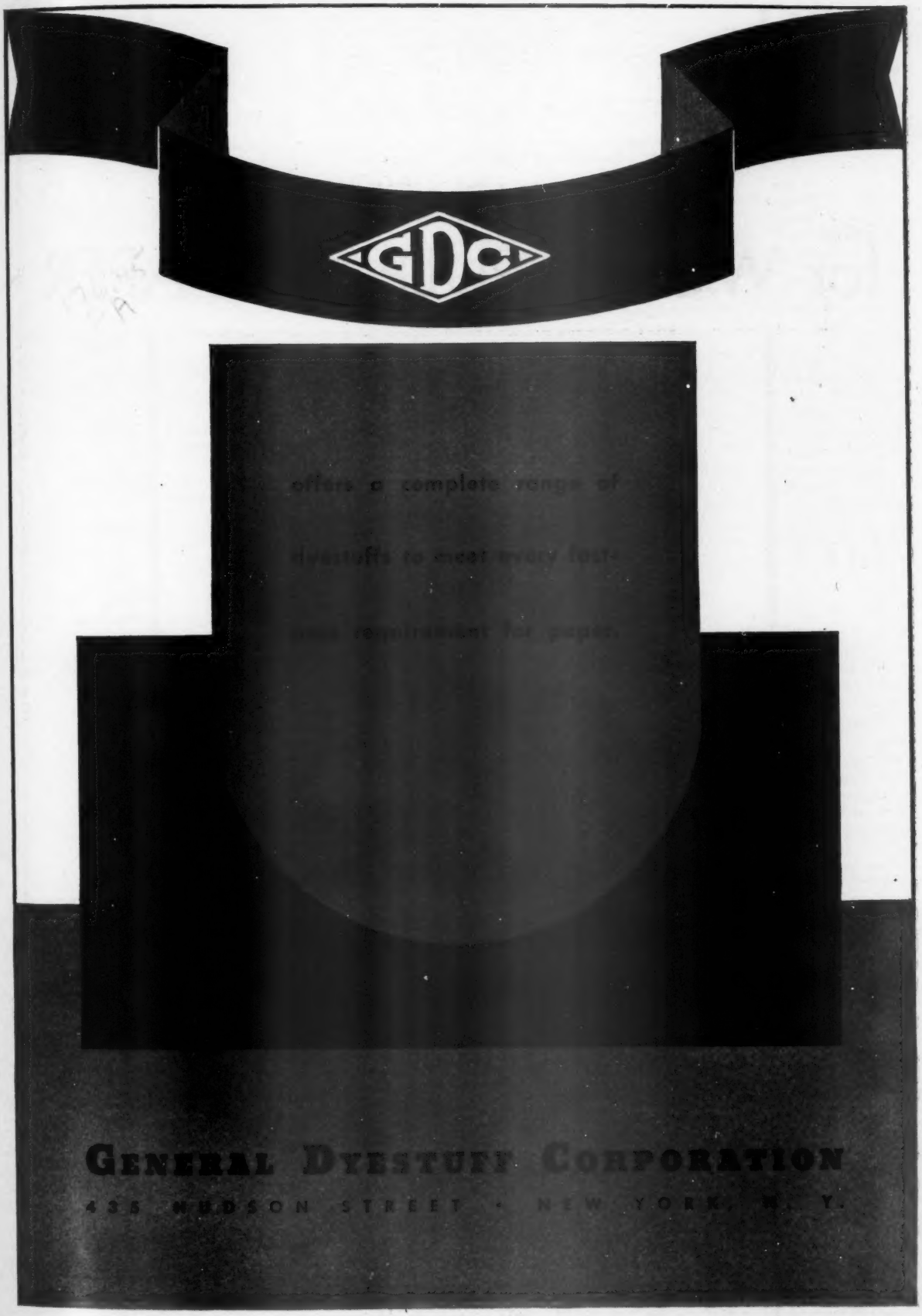
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Pacific PULP & PAPER Industry

The Journal of the Pacific Coast Industry

JULY • 1938
Vol. 12 – No. 7

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SUBSCRIPTION RATES

United States and Canada	$4.00
Other Countries	$5.00
Single Copies	$ .35
Review Number	$1.00

Pacific Northwest Industrial Sites for a Rayon Plant

by W. C. McINDOE, Industrial Chemist

THE search for plant sites in the Pacific Northwest for one or more units in the rayon industry's expansion program is governed by two distinct combinations of factors, one of which: dock-sites for water transportation, being common to both. **First,** proximity to raw materials plus dock-site facilities would influence a rayon plant to settle near the pulp mills. **Second,** when accompanied by its supplying industries, a rayon plant would seek sites near the Bonneville Dam, preferably along the lower Columbia River and from Portland, Oregon north on the Willamette River, thus keeping for itself dock-site facilities while gaining potentially cheap power due to proximity to the dam for its supplying industries' needs.

Sites Adjacent to Pulp Mills: Of possible sites adjacent to pulp mills, three in the State of Washington are of prime importance, being places where rayon, or dissolving, pulps are already being produced. They are located in Shelton, Hoquiam, and Port Angeles near the pulp mills of Rayonier Incorporated. In addition to these, locations near pulp mills producing bleached sulphite pulps from western hemlock are worthy of serious consideration, as is also that adjacent to the plant of St. Regis Kraft Company in Tacoma, Washington, who are bleaching successfully a sulphate pulp from western hemlock. These mills might be induced to do the extra refining necessary for a satisfactory rayon pulp.

Bearing in mind that an average size rayon plant would want not less than 50 acres of practically level ground, the following description of available sites is presented as promising:

● **Grays Harbor, Washington:** The important pulp and paper mill towns of Hoquiam, (population 12,800), and Aberdeen, (population 21,700), are located on Grays Harbor. The Grays Harbor Division of Rayonier Incorporated is already producing rayon pulp here. Satisfactory plant sites are available near the existing pulp mills and dock-sites are capable of development. The improved municipal water system of Aberdeen can be called upon for water supplies. Both the Northern Pacific and Oregon, Washington Railroad & Navigation Co. railroads serve these harbor cities.

● **Port Angeles, Washington:** At the eastern end of the Straits of Juan de Fuca, the entrance to Puget Sound, is a pulp mill town of 10,200 population. The Port Angeles Division of Rayonier Incorporated is producing rayon pulp here. Water supplies are adequate. Both rail and deep water transportation are available. The Chicago, Milwaukee, St. Paul & Pacific Railroad is the rail connection.

● **Shelton, Washington:** A pulp mill town of 3,100 people, is situated on Hammersley Inlet to Puget Sound. Here is located the Shelton Division of Rayonier Incorporated, making large quantities of rayon pulp from western hemlock. Artesion, as well as surface, sources for water are available and adequate. The War Department has authorized the dredging of the harbor. Suitable sites, having potential docking facilities, are available. The Northern Pacific Railroad serves the town.

Sites near Pulp Mills Potentially Capable of Producing Rayon Pulp: Potentially, all of the pulp mills producing bleached sulphite pulps could refine further to get rayon pulp. In addition, a bleached sulphate pulp from western hemlock may enter the picture. On this basis four more sites are added, with a further three when they install the bleaching equipment.

The four towns containing the mills which are already bleaching are described as further sites for a rayon plant.

● **Everett, Washington:** located on the Possession Sound arm of Puget Sound about 20 miles north of Seattle, is the home of the Soundview Pulp Co., producing bleached sul-

phite pulp, and Weyerhaeuser Timber Co., as yet manufacturing only unbleached pulp. Both rail and deep water transportation are available. The Great Northern Railroad passes through this town of 30,600 population. Its water supply can be developed further.

● **Longview, Washington:** a town of 10,700 population situated on the Cowlitz River about 4 miles above its junction with the Columbia River and between 35 and 40 miles west of Vancouver, Washington, and Portland, Oregon, contains the large bleached sulphite pulp mill of the Weyerhaeuser Timber Co. Dock-sites can be developed on the banks of these rivers. The railroad main lines, used jointly by the Northern Pacific, Great Northern, and Oregon, Washington Railroad & Navigation Co., pass through nearby Kelso with spur tracks into Longview. Water supplies are adequate.

● **Tacoma, Washington:** Tacoma, Washington, the State's second city in size, population 106,800, is suggested as a very favorable location for a rayon plant because of the marked success of the St. Regis Kraft Co. in bleaching their sulphate pulp from western hemlock and, also, because of the nearby caustic soda plants of Hooker Electro-chemical Company and Pennsylvania Salt Company. Very satisfactory sites with deep water dockage facilities are available. It is the Pacific terminus of the Chicago, Milwaukee, St. Paul & Pacific Railroad and the Northern Pacific, Great Northern and O. W. R. & N. pass through. Water supplies are adequate.

WILLIAM C. McINDOE

● **Newberg, Oregon:** a pulp mill town of 3,000 population, situated on the Willamette River about 25 miles southwest of Portland by rail, is where the Spaulding Pulp & Paper Co. is manufacturing chiefly unbleached sulphite pulp from western hemlock; but is bleaching a portion of their product. Although the pulp industry generally believes such an interior location to be unwise and uneconomic when so many sites on tide water are available and, although the Spaulding mill would require a large capital investment to make it a rayon pulp producer, the relatively high market value of the rayon yarn allowing a bit more in the way of handling and transportation charges, still prompts mentioning Newberg as an outside possibility. Newberg has ample water supplies and is served by the Southern Pacific Railroad. Barge service to Portland on the Willamette River might be developed.

The remaining three sulphite pulp mills are not bleaching their pulp at present; but are on tide water.

● **Coos Bay, Oregon:** is an important harbor outlet for considerable timber. The pulp mill of the Coos Bay Pulp Corporation is at Empire, Oregon. There are good plant sites near North Bend, Marshfield, and Empire. Sufficient water supplies are available. The Southern Pacific is their rail connection.

● **Anacortes, Washington:** on the Great Northern about 60 miles north of Seattle and on Puget Sound is the site of the Anacortes Plant of the Puget Sound Pulp & Timber Co. Dock-sites are available and water supplies can be developed.

● **Bellingham, Washington:** about 75 miles north of Seattle on Puget Sound, is a city of 30,800 population and the location of a pulp mill of the Puget Sound Pulp & Timber Co. Water supplies are adequate and satisfactory plant sites can be found on tide water. This northernmost city of the State of Washington is served by the Northern Pacific, Great Northern and Chicago, Milwaukee, St. Paul & Pacific railroads.

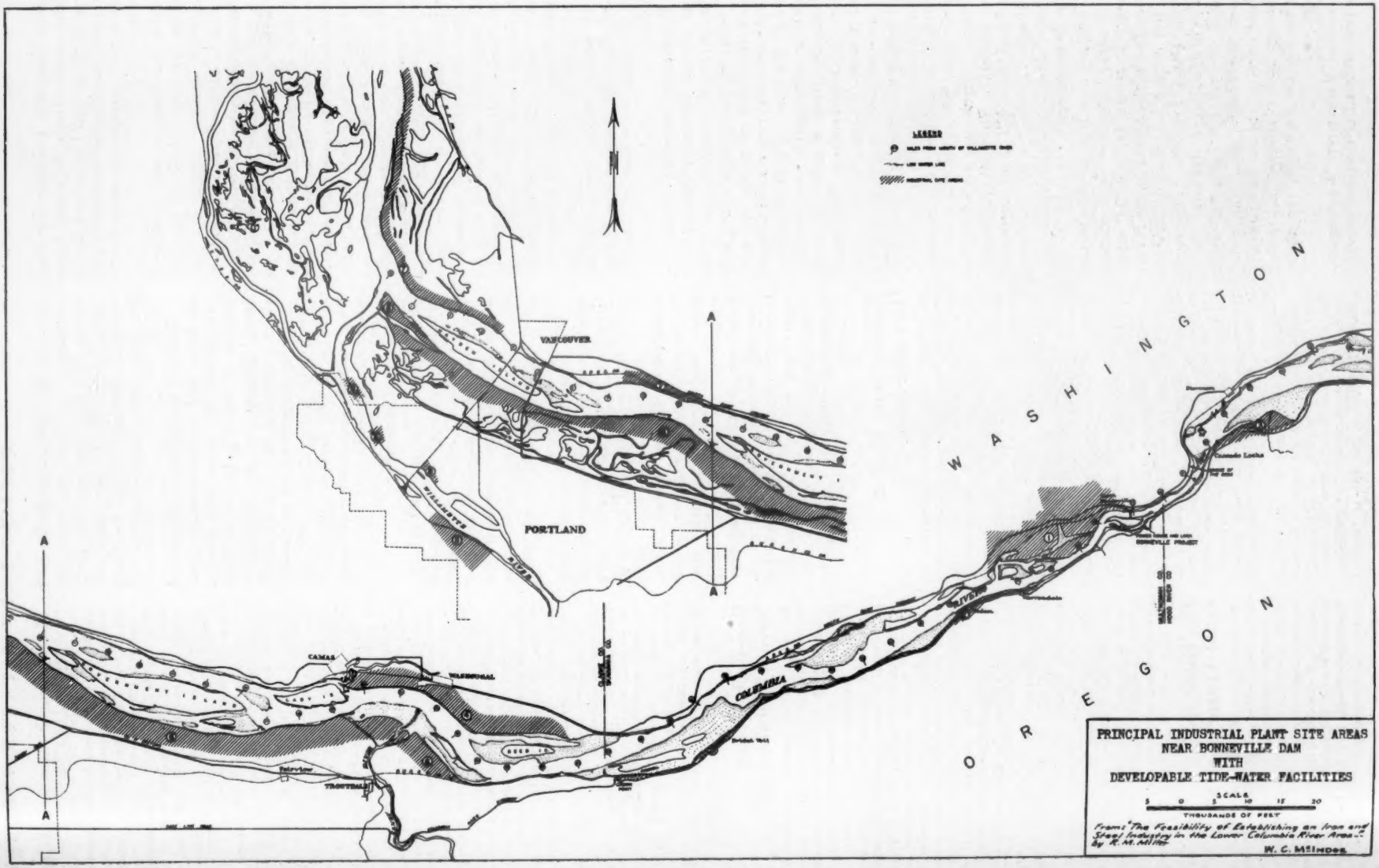
● **Sites Adjacent to Bonneville Dam:** Of course, we of the Pacific Northwest will welcome a rayon plant alone; but, for the sake of the great savings in transportation costs and for the beneficial effects of additional local payrolls, we would prefer to have it accompanied by the plants supplying it with the necessary chemicals not now being produced in Washington and Oregon.

As we pointed out in an earlier article, many of these tributary plants are large users of electric power. This fact would cause a rayon plant, when thus accompanied, to seek a location close to Bonneville Dam; but still on the tide water offered by the Columbia River and northern reaches of the Willamette River. Of this integrated group of industries the rayon plant would settle the farthest removed from the dam, not needing so much cheap power.

At the time of writing, Mr. J. D. Ross, Administrator of Bonneville Dam, has announced that he has submitted his proposed rate schedule to the Federal Power Commission; but the actual figures have not yet been released. In the article of this series, appearing in the December, 1937 issue, was an estimate setting firm power at the switchboard at 1.5 mills per kilowatt-hour and dump power at 0.5 mills per kilowatt-hour and that transmission as far as Vancouver, Washington, (40 miles), would cost another 0.5 mill per kilowatt-hour.

● The accompanying map of the lower Columbia River Basin shows graphically the location and approximate extent of the principal industrial plant site areas near Bonneville Dam having developable tide water facilities. Not being contoured, however, the map does not show the topographical reasons for the fact that near the dam the greater areas of level ground suitable for sites occur on the Washington side; whereas, as you proceed westward from the dam this level ground crosses to the south, or Oregon, bank of the Columbia River, as the hills and bluffs cease following the river bed so closely. These plant site areas are numbered for quick reference.

On the Washington side, fronting on the river from North Bonneville to about 5 miles below the dam, there are several hundred acres of fairly level ground available for sites. This acreage, (Area No. 1), is near enough to the tracks of the Spokane, Portland & Seattle Railroad so that the maximum spur to any site would not exceed 2 miles. The proposed channel dredging will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PRINCIPAL INDUSTRIAL PLANT SITE AREAS
NEAR BONNEVILLE DAM
WITH
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THOUSANDS OF FEET
From "The Feasibility of Establishing an Iron and Steel Industry in the Lower Columbia River Area."
By R. M. Miller
W. C. McIlmoyle

make dock-sites available for deep draft ocean vessels. Sufficient housing facilities could be found in the townsite of North Bonneville, just recently housing the construction crews.

On the Oregon side within 5 miles also of the dam are two considerably smaller areas; but still suitable. These are the **Dodson area** about 3 miles below, (Area No. 2), and the **Cascade Locks** tract, 3—4 miles above, (Area No. 3). At Dodson the suitable ground is back of the Union Pacific Railroad tracks which follow the river quite closely. Docking and spur track are no problem. The Cascade Locks area has some promising sites on both banks of Donner Creek just as it empties into the Columbia and within one or two miles of the town. The maintenance of a dredged ship channel for deep water navigation clear to The Dalles, Oregon, automatically guarantees dock-site facilities to these plant sites. The Columbia River Highway and the Union Pacific Railroad serve the town. The only bridge across the Columbia River near the Dam—"The Bridge of the Gods"—crosses at Cascade Locks.

Proceeding westward from the dam toward Portland, Oregon, and Vancouver, Washington, the areas of suitable level ground widen into many hundreds of acres, the preponderance occuring on the Oregon side of the river. On the Washington bank, sites with a river frontage of approximately 7 miles are available roughly between **Washougal** and **Camas,** (Area No. 4). The latter is the location of a large pulp and paper mill of the Crown-Willamette Paper Company, Division of Crown Zellerbach Corporation. These sites, all within 25 miles of the dam powerhouse, are served by the Spokane, Portland & Seattle Railroad and will have attractive dockage facilities after the ship channel dredging authorized by the War Department.

Crossing over now to the Oregon side, many excellent sites stretch along the river for the 25 miles from **Troutdale,** on the Sandy River, to the mouth of the **Willamette River,** (Area No. 6). The most western 4 miles of this area come within the present extent of deep water navigation and, therefore, would have immediate dockage possibilities. Both Northern Pacific and Union Pacific Railroads tap these sites.

Around **Vancouver, Washington,** the present head of deep sea navigation on the Columbia River, and stretching on down the river for about 15 miles, are excellent plant areas, (Area No. 7), with easily developed dockage. The Northern Pacific is within easy reach for rail hauls.

Splendid possibilities of combined dockage and railroad connections are offered by areas both in and outside of the city-limits of **Portland, Oregon,** on the Willamette River, (Area No. 8). For the whole 113 miles from Portland to the Pacific Ocean a ship channel 500 feet wide by 35 feet deep is maintained. No waiting on future dredging would be required.

Summary

● Through the medium of the articles appearing in this magazine and elsewhere from November, 1937, on, I've endeavored to infect others with my firm conviction that the Pacific Northwest would be an ideal location for the rayon industry.

We of the Pacific Coast offer that industry all of its raw materials and chemicals from local sources; very cheap electric power and industrial fuels; numerous tidewater sites; abundance of good water; white, American labor of superior intelligence and industry; proof that water-borne transport will carry their yarn product to existing eastern markets at a profit; and an extremely important and new market right here on our Coast in the World's second largest rubber manufacturing center at Los Angeles, California.

Orient News Market To Come Back

● Powell River Company is making no effort to develop new outlets to replace the Far East, which until outbreak of the Sino-Japanese war was an important export factor. William Barclay, manager of Powell River Sales Company, which markets Powell River Company's production in the markets of the world, says his company regards the unsettlement in the Orient as of a temporary nature, and that when the war is over a tremendous volume of business should develop in that area.

From the long-term viewpoint, the Orient is regarded as one of the best bets for the newsprint industry in British Columbia, and Powell River Company does not feel inclined to jeopardise its position in China and Japan for the sake of temporary revenue from other markets that would probably have to be dropped as soon as the more logical customers across the Pacific returned to the buyers' counter.

There has been hopes that the United States market would get back to normal after the first six months of 1938, as by that time it was thought that the heavy inventories accumulated by publishers towards the close of last year to forestall effect of the new $50 a ton price would be consumed. However, these hopes were not fulfilled, for two reasons: 1. Estimates of consumption were excessively optimistic, as advertising lineage failed to increase as expected. 2. Canadian newsprint manufacturers allowed production to outstrip demand. From the beginning of the year to the end of May stocks increased 200,000 tons. Had production been limited to shipments, the Canadian newsprint industry would be in a healthier condition today.

Just how long it will take to get the supply of newsprint down to a normal volume and the restoration of mill operations to a level reflecting current consumption, is a matter of conjecture. In five months the supply has been lowered 109,864 tons, or at an average of nearly 22,000 tons a month.

Owing to fluctuations in consumption, it is difficult to set a figure representing the normal reserve of paper, but it is estimated that there are at least 200,000 tons of excess paper on the market. If the decline in stocks continues at the same rate as in the past five months, it will be some time next year before the supply is back to "normal."

However, a substantial improvement in advertising and general business might alter the situation, and as economic conditions are believed to be considerably better now, the newsprint operators are feeling more optimistic.

Powell River Company officials believe that consumption of newsprint during the latter part of the present year will be at least equal to that of the corresponding period last year and inasmuch as much of last year's buying was for future requirements such a condition would represent a much greater relative improvement.

Roosevelt Vetoes Stream Pollution Bill

● The Vinson stream pollution bill, backed by industry and passed without opposition by the House of Representatives and by the Senate, was vetoed by President Roosevelt on June 25th.

President Roosevelt in his veto statement said he recognized the desirability of the legislation and approved the creation of a bureau under the surgeon general to study the problem. However, he vetoed the Vinson bill, he said, because it provided recommendation to Congress direct from the surgeon general for grants-in-aid to the states and others to carry out projects for the prevention of stream pollution.

He expressed the feeling that such recommendations should be made to the executive branch of the government so that final recommendation to the Congress could be made by the chief executive with due consideration to budget requirements and the correlation between efforts to eliminate stream pollution and other Federal projects.

Dr. Baird Coast Visitor

● Dr. Parker K. Baird, a member of the paper section of the Forest Products Laboratory at Madison, Wisconsin, and assistant to Dr. Curran, spent some time on the Coast early in July. He visited a number of Northwest mills, in company with Elton J. Lodewick of the Pacific Northwest Forest and Range Experiment Station in Portland.

Fritz Fernstrom Honored by King of Sweden

● Fritz O. Fernstrom, president of the California Fruit Wrapping Mills of Pomona, California, was awarded the Royal Order of Vasa by the King of Sweden at the recent Swedish-American celebration at Wilmington, Delaware. The award, made on the King's birthday, June 6th, is one of the highest decorations awarded by Sweden and was in recognition of Mr. Fernstrom's activity among Swedish-American groups in the United States and for his development of trade between the two countries.

Mr. Fernstrom attended the 300th anniversary of the founding of Delaware by Swedes in 1638 and was awarded his decoration personally by Crown Prince Gustaf of Sweden.

John Fernstrom Visiting Pomona

● John Fernstrom of the Fernstrom Company of Stockholm, Sweden, exporters of newsprint, has been a visitor in Southern California for the past two months. He is making his headquarters while here at the California Fruit Wrapping Mills in Pomona, of which his brother, F. O. Fernstrom, is president. He plans to remain another two months before returning to Stockholm.

Mekan-i-Kloth Sales Up in June

● Sales of Mekan-i-Kloth, the paper substitute for wiping rags, in the month of June doubled the best previous month, according to S. R. Hughes of Bellingham who developed the product which is manufactured for him by the Pacific Coast Paper Mills.

Mr. Hughes states that orders are now coming in from all over the United States for rolls of Mekan-i-Kloth. Principal users are service stations, garages, machine shops, ice cream makers, furniture stores and department stores. The products is also finding a place in homes for dusting and cleaning purposes.

●

"One Curve That is UP."

Having just recently published our Annual Review Number which contained a large number of graphs indicating 1937's upswing, we have already begun wondering how the 1938 graphs will look when the time comes to issue the 1939 Review Number.

Perhaps we've found a solution.

If the pulp and paper industry doesn't show a big upswing in the next six months, we may have to resort to this idea for we are determined to have the graphs going up.

Under the above heading appeared the cartoon at the right in the May number of the Bird Machine Company's house-organ, "The Stuff Box." It is reproduced with acknowledgements to Bird and to the original publisher, "Purchasing." Bird refers to the cleanliness curve of paper made with modern Bird equipment.

Pete Duignan Married

● P. T. Duignan, associated with A. R. Heron in the San Francisco office in the industrial relations department of the Crown Zellerbach Corporation, was married Saturday, June 18, to Elizabeth Ann Corcoran, in the St. Anthony's Church, Oakalnd, Calif.

After the ceremony a wedding breakfast was given at the Leamington Hotel, attended by the family and intimate friends.

The marriage was solemnized by the bride's brother, Father Francis J. Corcoran, who recently was ordained priest, and who came out from the East to perform his first marriage ceremony.

The newly-wed couple are making their home in San Francisco, following a honeymoon trip to Southern California.

Mrs. Duignan was formerly a hostess on the air line between San Francisco and Seattle, and the romance developed after Mr. Duignan met her while on trips between offices of the Crown Zellerbach Corporation.

Ed Wood In Appleton

● Ed Wood technical director of the Longview pulp division, Weyerhaeuser Timber Co., left July 8 for Appleton, Wisconsin, to attend a seminar on the color of pulp and paper at the Institute of Paper Chemistry. He was due back in Longview on the 18th.

Spaulding News

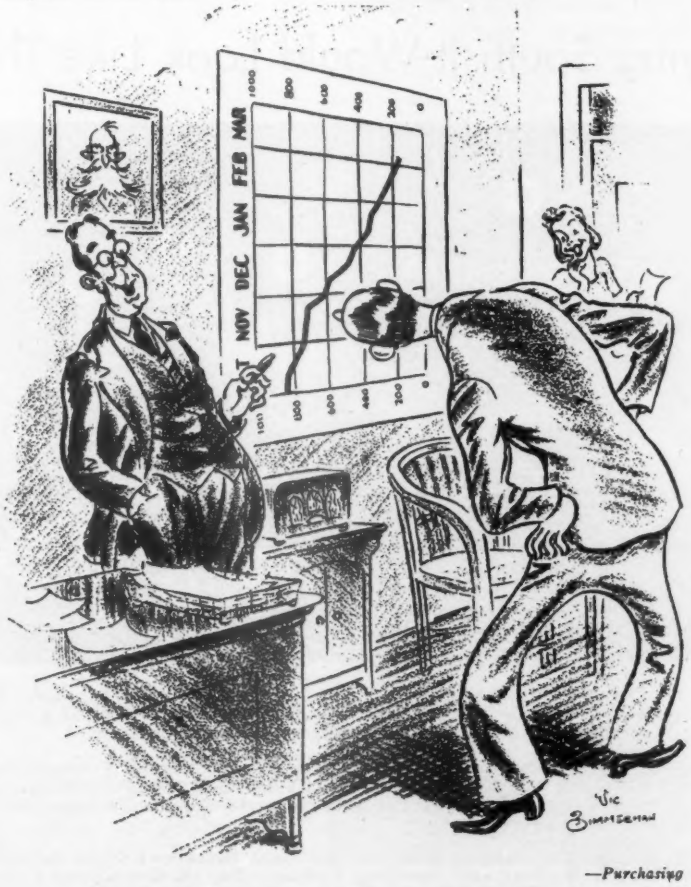
● The Spaulding Pulp & Paper Co., Newberg, Ore., closed June 30 for a shutdown of 30 days or more. The plant will be down all through July, and possibly will be closed longer, depending on market conditions. Prior to this time the mill has been working on a 50 per cent basis, operating 30 days and shutting down 30 days, since the Japanese market fell off.

The company is still planning the installation of dryers on the machine, but has not yet set the date for actual installation. At their request, the new dryers are being held at the factory, ready for shipment at the proper time.

An election was recently held among the employees of the company to determine the official bargaining agency. As a result, the International Sulphite, Pulp and Paper Makers Union was certified as the bargaining agency for the workers. There was no jurisdictional dispute involved, the only question being whether this union had a membership comprising a majority of the employees, which it did.

Dr. Friedman at Weyerhaeuser in Longview

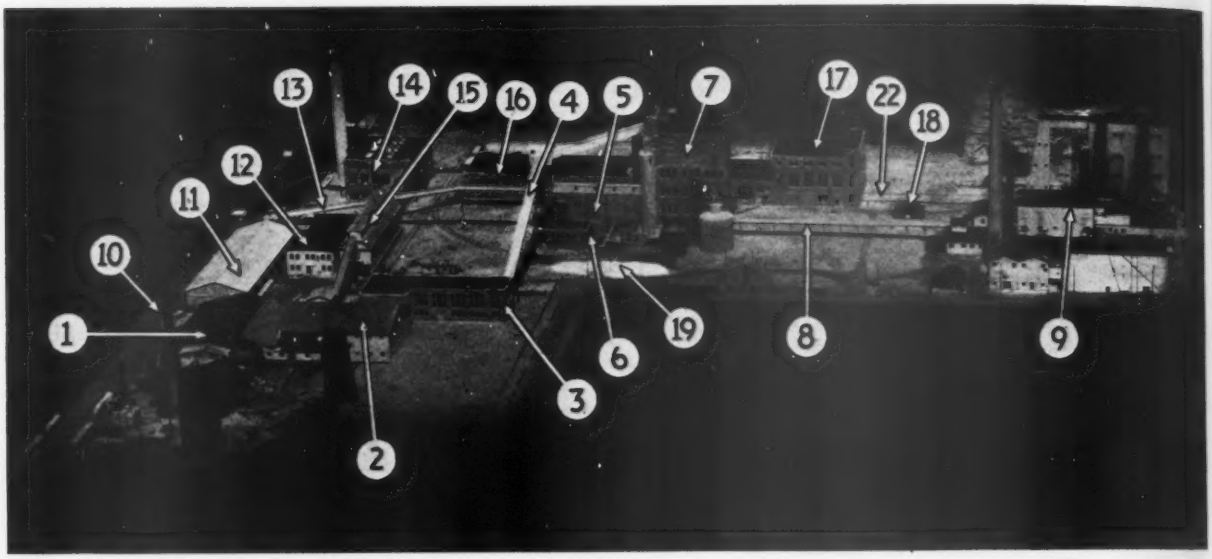
● Dr. Leo Friedman, who is in charge of the physical chemistry department of Oregon State College at Corvallis, is working in the Weyerhaeuser research laboratory at Longview this summer as a member of the staff.



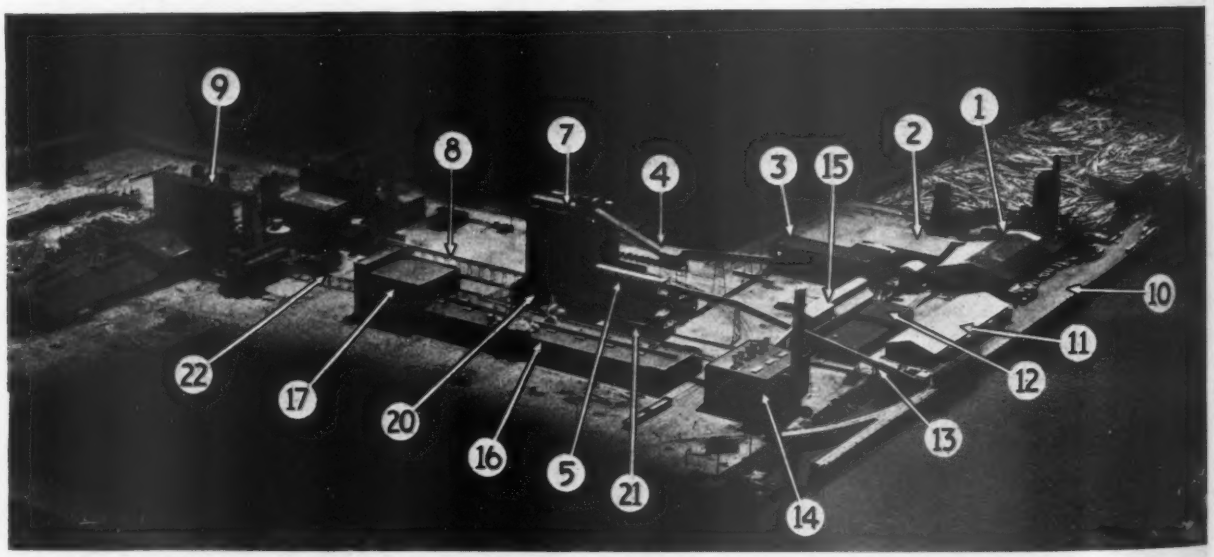
—*Purchasing*

"I know it's a trifle inconvenient, but the psychological effect is better."

If You Were Flying North Puget Sound's New Mill Would Look Like This—



Flying South It Would Look Like This—



THE SIMPLICITY OF DESIGN is apparent from the air » » » The several departments are identified by numbers » » » No. 1 is the Log Breakdown Plant; No. 2, Wood Cleaning Room; No. 3, Chipping and Screening Building; No. 4, Chip Conveyor to storage over digesters; No. 5, Sulphur Storage Silos; No. 6, Acid Plant.

No. 7, Digester Building with Jenssen Acid Towers and Chemipulp Accumulator; No. 8, Chip Conveyor and Pipe Bridge to Original Mill (Mill A); No. 9 is the original unbleached sulphite mill, now called Mill A; No. 10, the new 900 foot long dock; No. 11, Pulp Warehouse; No. 12, Machine Shop and Supplies Storage; No. 13, Sulphur Conveyor from Dock to Storage; No. 14, Steam Generating Plant.

No. 15, Hogged Fuel Storage and Conveyors from Breakdown Plant through storage to Steam Plant; No. 16, Drying Machine Room; No. 17, Washing and Screening Building; No. 18, Testing and Control Laboratory and Superintendent's Office; No. 19, Lime Rock Storage; No. 20, Blow Pits and Vomit Stacks; No. 21, Electric Substation for handling power supplied by Puget Sound Power & Light Co.; No. 22, Stock Line from Mill A to Drying Machine Room.

The Pacific Coast Adds a New Mill To Its Modern Wood Pulp Industry

The PUGET SOUND PULP & TIMBER COMPANY completed construction May 15th of its new unbleached sulphite pulp mill at Bellingham, Washington – The general construction contract was let September 14, 1937 – The capacity of the new plant is 125 tons per day, giving the company a total daily production from the two Bellingham units of 235 tons of unbleached sulphite pulp

ON May 15th when the new unbleached sulphite pulp mill at Bellingham was completed by the Puget Sound Pulp & Timber Company the attention of the American pulp and paper industry was again focused on the Pacific Northwest as the growing center of quality wood pulp production in the United States.

At the same time paper mills throughout the country who buy pulp for conversion into paper and board, gained another American source of supply for unbleached sulphite pulp of which grade 919,614 short tons were imported in 1937. This, incidentally, was an increase of 132,894 tons or 16.9 per cent over the 1936 imports of 786,720 tons, and an increase of 226,588 tons or 32.6 per cent over the 1935 imports of unbleached sulphite pulp of 693,026 short tons.

In 1937 the 16.9 per cent, 132,894 tons, increase in unbleached sulphite imports was larger than the total increase in imports of all grades of wood pulp of 116,710 tons.

Although the new Puget Sound Pulp & Timber Company mill at Bellingham will contribute approximately 40,000 tons annually to the supply available to American paper mills, it will be seen that the increase in domestic capacity is but a drop in the bucket, so to speak, as compared with the 919,614 tons imported in 1937. However, this new mill is a step forward in the more economical utilization of the Pacific Northwest's vast pulpwood resources and also of benefit through the employment of more Americans.

A Pioneer Pulp Producer

● The Puget Sound Pulp & Timber Company, of which Ossian Anderson is president, is a pioneer Pacific Coast producer of unbleached sulphite pulp. It was incorporated in April of 1929 to acquire certain properties including the unbleached sulphite pulp mill of the San Juan Pulp Manufacturing Company in Bellingham (now Mill A) and the unbleached sulphite pulp mill of the Fidalgo Pulp Manufacturing Company in Anacortes, Washington. Mr. Anderson was president of both of these companies.

The mill at Anacortes was completed late in 1925, operated 54 days that year and produced 859 tons of unbleached sulphite pulp. The following year the mill at Bellingham was started and at the time of the merger and formation of the Puget Sound Pulp & Timber Company the two plants were producing a total of 40,000 tons of pulp per year.

With the completion of the new mill at Bellingham the company's three plants have a combined producing capacity of approximately 100,000 tons annually.

At the time the present company was incorporated in 1929 it acquired timberlands in the foothills of the Cascade Mountains, a logging railroad and a sawmill at Clear Lake, Washington. In 1936 the sawmill was dismantled and the equipment sold. Logging operations have been carried on and supply the company with wood for the mills in Bellingham and Anacortes. Logs are also purchased on the open market, the production and purchasing being balanced to provide a uniform supply of wood at the minimum cost.

The company controls nearly half a billion board feet of standing timber of which 65 per cent is of the pulping species. In addition it has

OSSIAN ANDERSON, President Puget Sound Pulp & Timber Co.

WOOD CLEANING is given careful attention » » » Knots and defects are removed here from large cants » » » Slabs and edgings are cleaned on the lower floor.

THE PUGET SOUND PULP & TIMBER COMPANY HAS BU

access to timber owned by others amounting to more than 700,000,000 board feet. The company's logging railroad, which is a common carrier of standard gauge, is 32 miles in length and connects with the Great Northern Railway at Mt. Vernon, Washington. From the log dump on the Skagit River near Mt. Vernon logs are towed to the pulp mills at Anacortes and Bellingham.

Planning The New Mill

● In the spring of 1937 the directors of the Puget Sound Pulp & Timber Company laid plans for the construction of a new and modern unbleached sulphite pulp mill capable of producing 40,000 tons annually, and so designed as to permit economical expansion up to a maximum of 160,000 tons annually. The possibility of bleaching was taken into consideration and the plans so made that a bleach plant may be added at any time it may be thought desirable.

The firm of consulting engineers, Cavin, Marshall & Barr, was selected by President Ossian Anderson to design and supervise construction of the new plant, which it was decided would be built in Bellingham on a recently acquired site adjacent to the company's operating mill in that city.

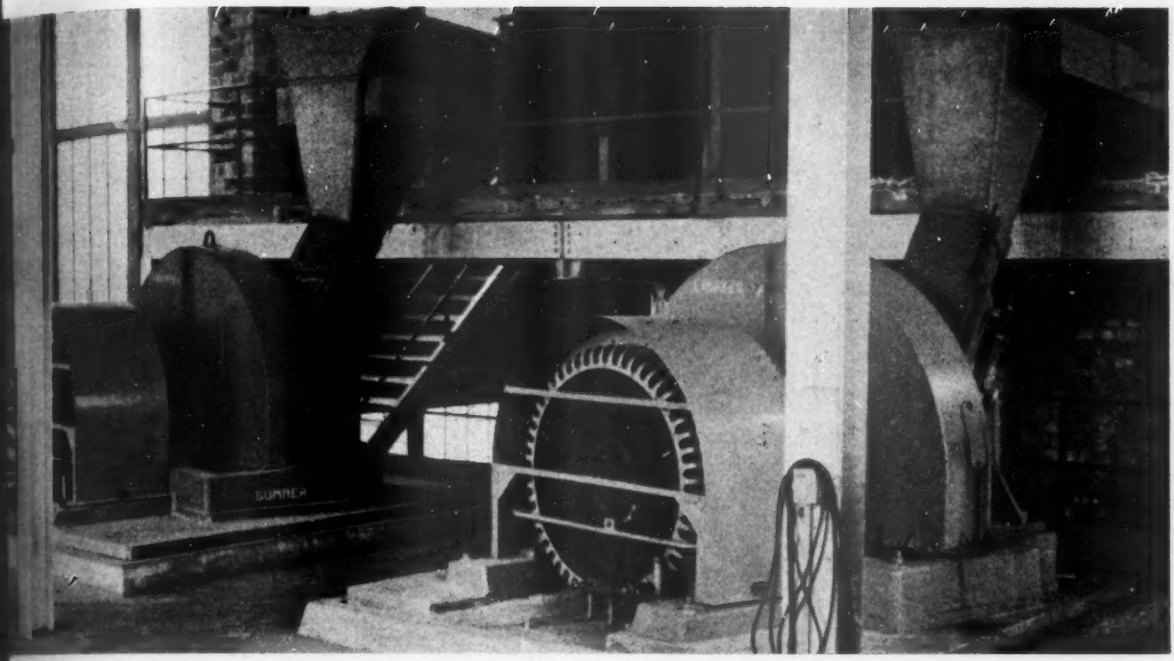
Public announcement of the plans for the new mill were made in June, 1937. The announcement followed the completion of arrangements with the City of Bellingham on June 7th for an adequate supply of pure water for the new plant.

Engineering work went forward rapidly and by early August piles were being driven for the new 900-foot dock. The general construction contract was let on September 14th. It was originally planned to place the new mill in operation the latter part of March of this year but the decline in demand for pulp made the fast schedule unnecessary and so construction was not entirely completed until May 15th, 1938.

On September 3rd, 1937, the Puget Sound Pulp & Timber Company issued, through the Bankamerica Company of San Francisco as underwriters, 125,000 shares of 6 per cent convertible preferred stock. This stock issue provided $2,500,000 for the construction of the new pulp mill.

The officers and directors of the Puget Sound Pulp & Timber Company are: Ossian Anderson, president and director; H. M. Robbins, vice-president and director; Lawson Turcotte, secretary and treasurer; Robert H. Evans, director and legal counsel; F. Stevenot, director; Ralph H. Miller, director; Dr. William C. Keyes, director; and Jasper L. Rucker, director.

● Erik Ekholm, superintendent of the Puget Sound Pulp & Timber Company's new mill at Bellingham, has been in charge of the original mill since 1929. Mr. Ekholm is a graduate of the Swedish Technical University in Katrineholm, Sweden, and his operating experience has been gained both here and abroad. He is a member of the Technical Association of the Pulp and Paper Industry.



ESE TWO 84 INCH CHIPPERS handle e cleaned and washed cants » » » A smaller per on floor below takes the slabs and ings.

BU NEW UNBLEACHED SULPHITE PULP MILL OF MODERN,

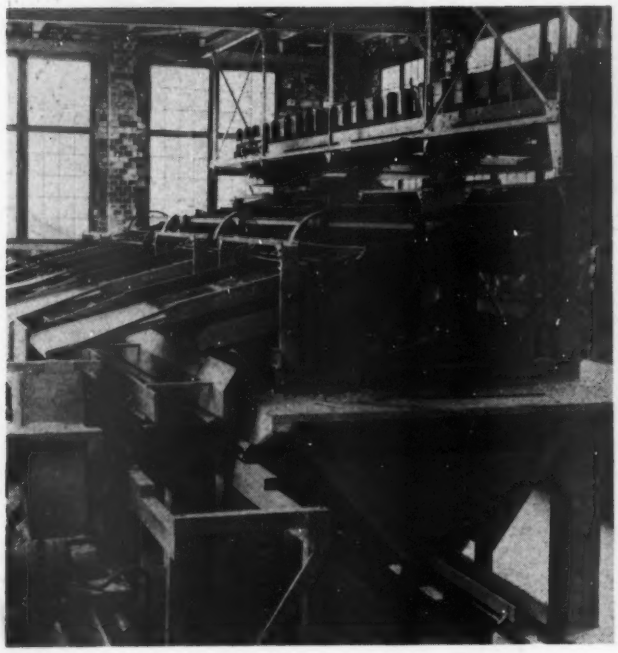
IN designing the new mill it was the aim of the engineers to evolve a simple and efficient plan capable, as mentioned before, of being expanded at a later date into a mill as much as four times larger in producing capacity than the first unit. It will be noted from a study of the aerial photographs that these aims were accomplished although the problem was complicated by the necessity of tying in several departments of the new plant with Mill A.

The new mill includes sufficient capacity in the first unit to provide chips, steam, acid, stock chests and drying for the original mill now called Mill A, or capacity in these departments to produce a total of 235 tons of pulp. Mill B, the new plant, and Mill A can be operated separately by varying the production of chips, steam, acid and by running only one drying machine.

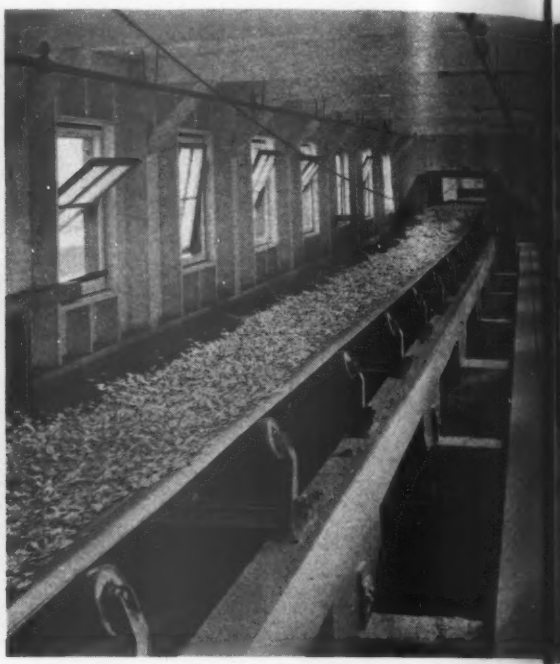
The engineers paid attention to architecture in designing the buildings which possess a functional beauty not ordinarily found in industrial plants. The principal buildings are of steel and the new dual brick which possesses the advantages of higher insulating value and greater speed in laying due to the larger size. Insulation is obtained by air pockets in the brick. The sulphur silos, the acid towers and the Chemipulp accumulator are of reinforced concrete, constructed by the slip-form method.

In 1936 the Puget Sound Pulp and Timber Company purchased the Morrison Mill Company's sawmill and property adjoining the company's pulp mill. The sawmill was revamped to breakdown logs into cants and for barking them to use in the old chipping plant. The cleaned cants were transported by lumber carrier to the former chipping plant located in Mill A. When plans were being made for the new mill it was decided to make all the chips in the new chipping plant located alongside the breakdown mill on the waterfront and convey the screened chips to the old mill by belt conveyor.

WALTER DeLONG
Operating Manager
Puget Sound Pulp & Timber Co.



FOUR SHAKER TYPE CHIP SCREENS provide ample capacity for thoroughly removing all fines and oversize chips » » » A re-chipper reduces the oversize chips.



AN AUTOMATIC TRIPPER discharges the chips from the conveyor belt into storage bins above the digesters.

SIMPLIFIED DESIGN at BELLINGHAM, WASHINGTON, w

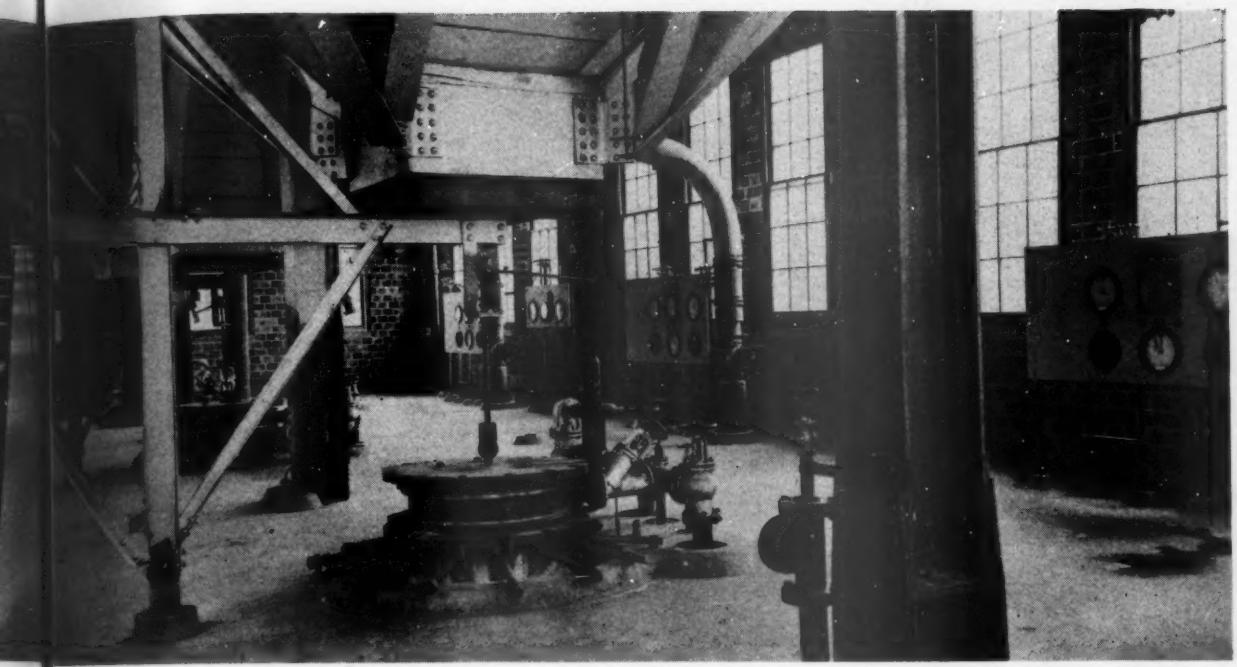
Log Break Down

THE logs are brought into the mill by means of an endless chain fitted with log chairs or brackets. They are transferred from the log slip to the log deck by means of a steam log kicker, held on the deck until loaded on the carriage. They are broken down on a double circular head rig, the long cants being cut in two with a steam swing up saw between the head rig and the edger. The shorter sections are then transferred to and passed through the edger. Those cants requiring barking are transferred to a train of live rolls which automatically delivers them to either one of two Stetson-Ross power barkers. The small edgings are transferred in the opposite direction to a cut off saw and cut into four foot lengths. They are carried on a transfer to two hand barkers where the bark is removed, the clean wood being placed back on the transfer and delivered to the main refuse conveyor.

RALPH M. ROBERG
Sales Manager
Puget Sound Pulp & Timber Co.

The barked cants from the power barkers are delivered on to a transfer in the rear end of the mill. Those from which the bark has been thoroughly removed are sent up an inclined conveyor to a 12 saw 22 foot automatic air lift roll. Such pieces as have not been thoroughly cleaned are by means of a raising and lowering section of this transfer, permitted to pass underneath this train of rolls and transfer which automatically delivers them to a third Stetson-Ross power barker situated at the end of the mill. The material from this third barker delivers on the main transfer across the mill. As the material passes over the trimmer that containing black knots is cut to approximately six feet in length. The material containing rot is cut to four foot lengths.

The clean inside wood which is free of black knots or rot is cut in pieces up to 12 feet in length. The four foot pieces drop into the transfer back of the trimmer into the main refuse conveyor. The wood six feet and longer is delivered on to a set of reversible live rolls which distributes the material to two main transfers which extend through the cleaning department. From these main transfers jump rolls are provided for removing such pieces as contain black knots, bad ends, etc.



OPERATING FLOOR OF THE DIGESTER BUILDING » » » Note instrument panels for each of the three digesters » » » Top relief valves and piping are of Stainless steel.

, w CAPACITY of 125 TONS PER DAY. The COMPANY NOW

to a center storage transfer, on either side of which is located knot saws for removing defects. The wood after being cleaned is placed on either one of the two main transfers. These main transfers are so arranged as to deliver the wood into either one of the two conveyors leading to the 84 inch chippers, the conveyors being equipped with washers for cleaning the wood. The center control stage is located at the far side of the outside conveyor to the chippers from which point the operator distributes the wood between the two machines.

● In the salvage department all of the four foot wood is picked from the main refuse conveyor and placed upon the transfer which conveys it to a power bolter which is used for ripping over size pieces of material, also removing rot and such defects. From the bolter the material is delivered on to a transfer which conveys it past a hand barker and a knot saw where such pieces as contain black knots and other defects are cleaned and placed back on this transfer which delivers it to a conveyor leading to a small chipper located on the lower floor of the wood room.

Provision is made for the purchase of wood which is delivered to the mill on railroad cars which are switched in along one end of the wood room. As the wood is unloaded from the cars it is sorted, the clean wood being placed on a conveyor and that wood which requires cleaning on another conveyor directly over the clean wood conveyor. This upper conveyor delivers the wood to the transfer which passes by the knot saw and the hand barker and ultimately finds its way to the conveyor and to the small chipper, while the lower conveyor which carries the clean wood delivers on to another transfer which conveys it to the small chipper.

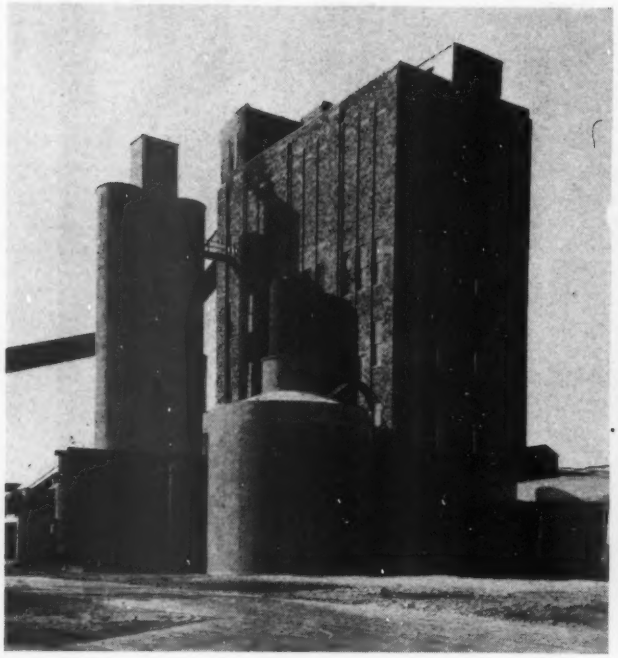
● The Hesse-Ersted Iron Works of Portland, Oregon, supplied the new trimmer, the six specially designed knot saws, the four chip screens, the two refuse hogs, the four hand barkers and other miscellaneous wood room equipment.

Chipping and Screening

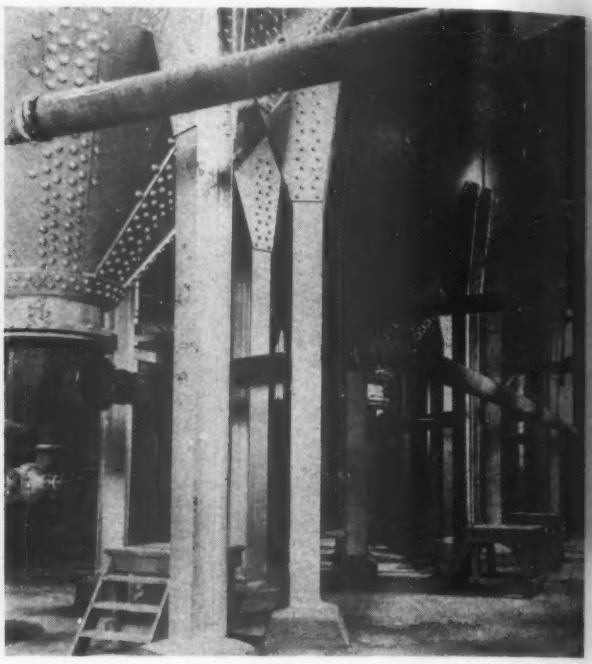
FROM the wood cleaning plant the cleaned cants are conveyed directly to the two large chippers passing through high pressure enclosed showers to remove loose bark and sawdust. The new chippers are two Sumner 84-inch direct connected of the bottom discharge type. The synchronous motors are Westinghouse of 250 horsepower and turn at 360 r.p.m. The cleaned slabs and edgings which were hand barked on the first floor of the wood cleaning plant (the large cants are cleaned on the second floor) are conveyed to a smaller Sumner chipper which discharges into the same belt conveyor as do the two larger chippers.

Four Hesse-Ersted shaker type chip screens remove oversized chips and fines. The oversize chips are rechipped and rescreened.

From the chip screens the chips



DIGESTER BUILDING with vertical pipe conveyor for chips to Mill A » » » Acid towers and . Chemipulp accumulator.



ALL DIGESTER DISCHARGE VALVES, fittings and pipe are of stainless steel and floor is of acid resistant cement.

HAS a TOTAL DAILY PRODUCING CAPACITY of 315 TONS

ERIK EKHOLM
Superintendent
Puget Sound Pulp & Timber Co.

are belt conveyed to the top of the digester building over a steel frame conveyor housed in Transite. Here they are either discharged by the automatic tripper or carried over to the end of the building and discharged into a pipe which carries them down to another belt conveyor and to the original mill for conversion into pulp.

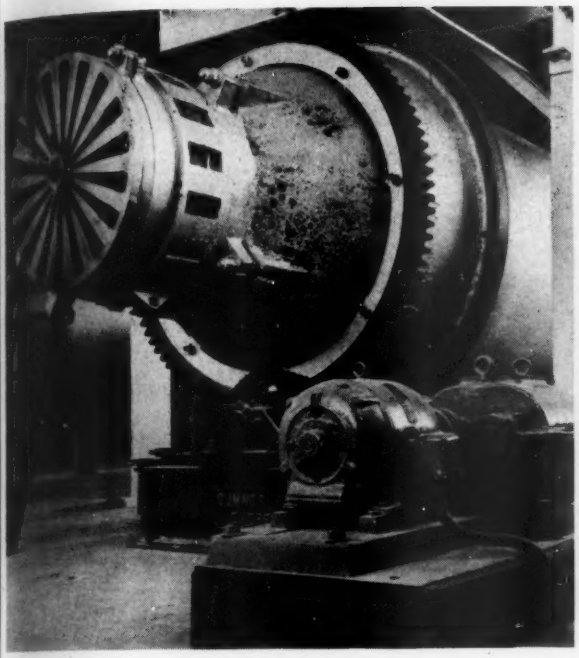
Cooking

There are 61,300 cubic feet of chip storage above the three digesters in the digester building which is five stories in height and of steel, concrete and brick. The three sulphite digesters are each 18 feet in diameter and 56 feet in height, and were lined by the Stebbins Engineering Corporation of Seattle.

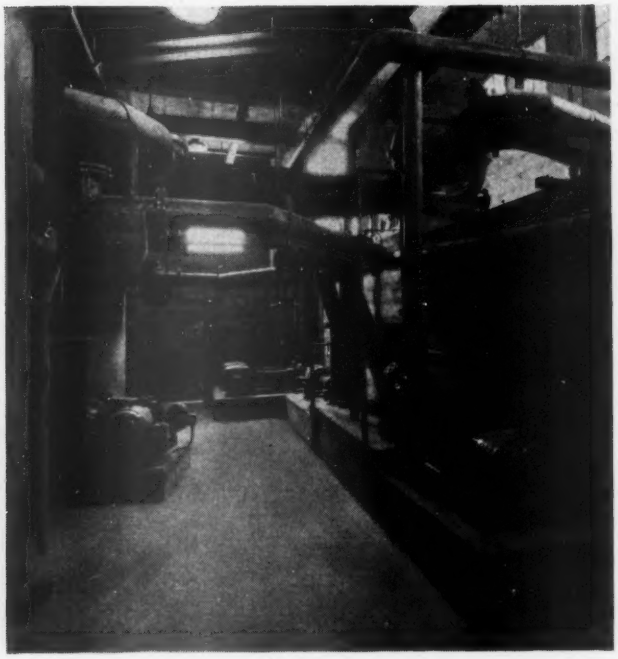
The standard Chemipulp system is employed with the 32 foot diameter spherical acid accumulator housed in a separate reinforced concrete building. Provisions were included for the installation later on of forced circulation and heaters.

• All fittings and valves are of Esco stainless steel cast by the Electric Steel Foundry Company of Portland. The piping is KA2SMO centrifugally cast and supplied by Esco. The eductor and accumulator circulating pumps were designed by the Bingham Pump Company of Portland and cast in their patterns by Electric Steel.

At this point it is interesting to note the extensive use of corrosion resistant materials throughout the mill to avoid contamination of the pulp and to provide economy through long life. The outstanding value of these materials has been fully demonstrated in recent years in the modern sulphite industry of the Pacific Northwest, and also in the production of other types of pulp and of paper. The Electric Steel Foundry Company of Portland have contributed their full share toward the present high development of the stainless steels em-



TWO ROTARY SULPHUR BURNERS of modern design produce gas for acid making.



ACID PLANT pumps are of stainless steel and piping is of lead where required.

NS OF UNBLEACHED SULPHITE PULP; 125 TONS FROM THE

ployed by the industry. They occupy rather an unique position in the pulp industry in that they furnish both the experimental facilities with which to test any corrosion resistant materials, and the engineering ability to adapt them to the uses of the mill. Through their facilities and experience they have been able to carry out the original design requirements of the engineers in such matters as special valves and other specified structural elements. The entire group of piping and outlet fittings handling acid to and from the accumulator and the digesters was furnished through them. The valves were all cast by Electric Steel to specifications of the designers. In the case of the blow valves the engineers of the mill did the designing. Other valve designs were furnished by the Foxboro Company and the Doran Company of Seattle. The entire installation of stainless steel piping, fittings, valves, and blow pit bottoms were assembled or cast by Electric Steel, which simplified the work of the engineers and speeded up installation.

Control Instruments

● The digester instruments were supplied by the Foxboro Company and The Bristol Company. Foxboro furnished the automatic top relief, automatic steam pressure controllers, automatic steam desuperheaters and recording liquid level gauges on the digesters and accumulator. Bristol recording pressure and temperature instruments were installed on the digesters and accumulator.

Acid Making

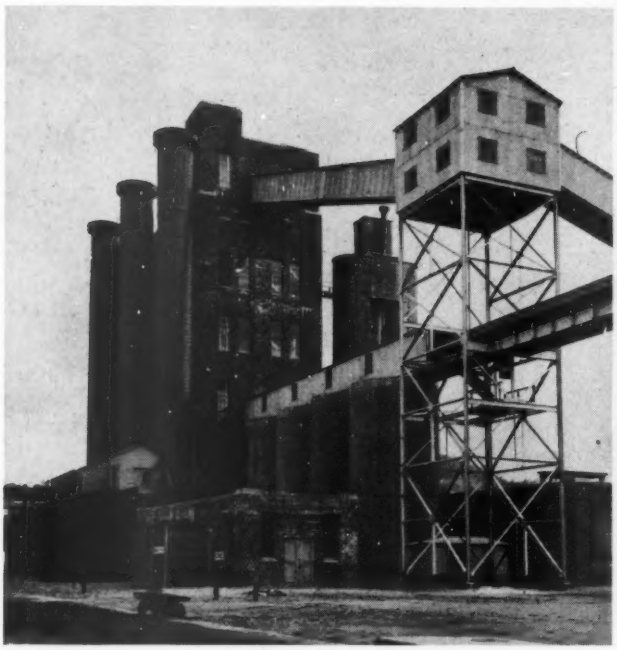
● The acid system of the Jenssen type was designed by A. H. Lundberg of Seattle and has sufficient capacity to produce acid for a 250 ton mill. It provides acid for Mill A as well as for the new plant. The acid towers, two in number, are 11 feet in diameter and 96 feet in height and tile lined. The sulphur is burned in two rotary sulphur burners built by the Sumner Iron Works of Everett, Washington. These are 5 feet in diameter and 14 feet long and brick lined. The two combustion chambers are 10 feet 6 inches in diameter and 14 feet high.

The handling of sulphur is economical and done without waste or dust. Storage is provided for 2,000 tons of sulphur. The method of conveying the sulphur to storage and discharging it for use is described under conveying.

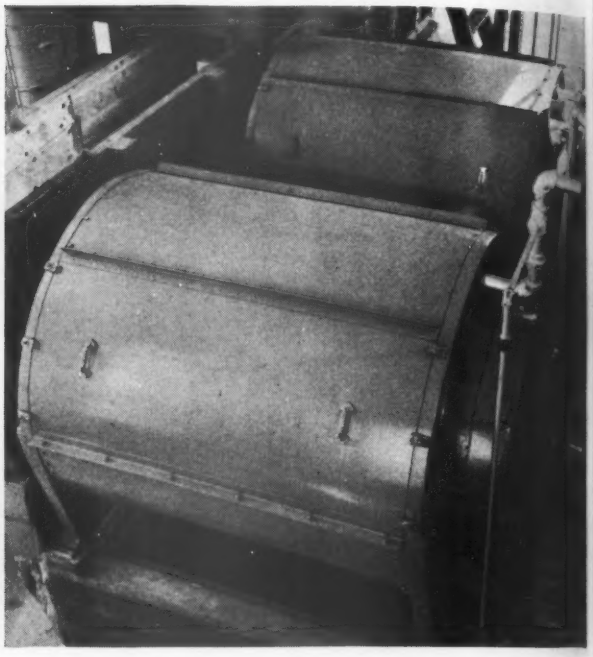
There are two 25 feet in diameter by 22 feet in height wood stave acid storage tanks and one 40 foot high absorbing tower filled with 13,000 6 inch helix tile. These tanks were furnished and erected by the National Tank & Pipe Company of Portland.

The standard gas coolers are of lead supplied by the Northwest Lead Company of Seattle as is the piping in the acid plant.

In the acid plant two Bristol pyromaster potentiometer pyrometers record temperatures from zero to 2000 degrees Fahrenheit, and two Bristol low range draft gauges determine the amount of suction on the fan.



BLOW PITS and vomit stacks of wood stave construction parallel the digester building » » » The stacks, 103 feet high, are reported the highest ever built.



AFTER WASHING, THE KNOTTERS remove the larger uncooked pieces before riffling » » » Knotters are of corrosion resistant material where contact is made with the pulp.

NEW MILL, 110 TONS FROM THE ORIGINAL BELLINGHAM

E. O. ERICSSON
Chief Chemist
Puget Sound Pulp & Timber Co.

Blow Pit Construction

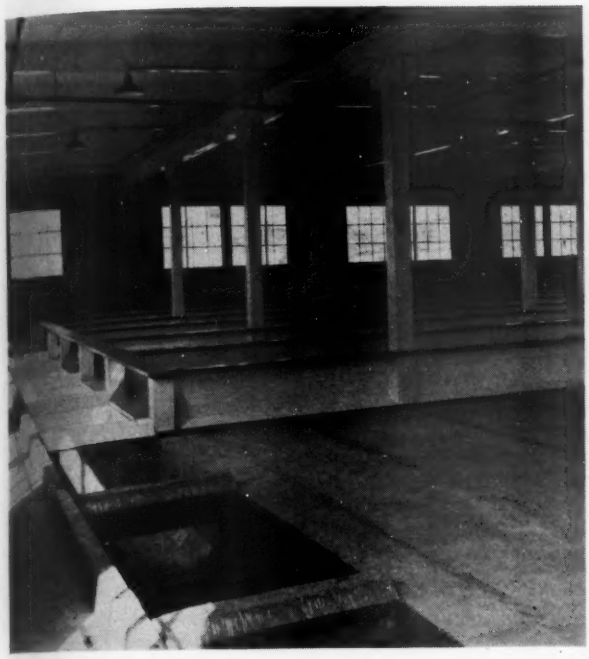
● The three wood stave blow pits are each 36 feet in diameter and 20 feet in height. The foundation consists of cast concrete slabs resting on piling. Each blow pit has a separate vomit stack, 10 feet in diameter and 103 feet high of wood stave construction. These are said to be the highest vomit stacks ever built. Specially designed vomit sprays were furnished by the James Brinkley Company and are employed together with a series of baffles to condense the gases arising from the blow pits.

The bands on the vomit stacks are Everdur where the corrosion is greatest. All bands on the top and the first six below the opening of each stack are of Everdur. The three blow pits and three vomit stacks were furnished and erected by the National Tank & Pipe Company of Portland and are of Douglas fir. Their arrangement alongside and parallel to the digester building presents a pleasing appearance as will be noted by the photograph.

The blow pit bottoms are of stainless steel a thicker gauge than usually employed and the holes are of a smaller diameter. The stainless steel bottom plates were furnished by the Electric Steel Foundry Company of Portland, Oregon.

From the blow pits where the stock is thoroughly washed by a specially designed monitor nozzle system it is sluiced into a 36 inch wood stave header and pumped to the screen building.

The stock from the blow pits is stored in a concrete, tile lined chest from which it is pumped when needed. Before going through the knotters the stock passes through a 5 by 7 foot rubber lined Impco vacuum washer with stainless steel trim. All parts of the washer coming in contact with the stock are either rubber lined or of stainless steel to prevent corrosion and contamination of the stock.



RIFFLERS ARE FELT LINED and of large capacity with baffles » » » Discharge troughs are white tile lined.

FLAT SCREENS TAKE THE STOCK from the rifflers « « « Flow is by gravity « « « All screen plates are chromium plated.

MILL and 80 TONS from the ANACORTES MILL, 35 MILES

Screening

AFTER the washer the stock is pumped to the top floor of the screen building and starts on its gravity flow passing first through two Impco knotters. These knotters are designed to keep the pulp clean. The inlets are rubber lined, the plates are of bronze, the blades are copper covered. Each knotter is driven by a 2 h.p. motor through integral reduction gears.

Then by gravity over the six rifflers 8 feet in width and 60 feet in length. They are felt lined. Two 8 foot square by 4 inches wide baffles are in each riffler with the baffle boards 12 inches apart. The stock discharges into tile lined concrete collecting troughs and drops down to the floor below onto the 2 rows of primary flat screens. There are four screens in each row. Then onto the 2 row four screen secondary and the remaining stock passes onto the 1 row four screen tailing screens, making a total of five lines of screening capacity.

The primary screens are equipped with .008 cut screen plates, the secondary row with .007 cut plates and the tailing screens with .006 cut plates.

Screens plates are all of the new open back style, eight slots to the inch, and were Crodon chromium plated by the Chromium Corporation of America for whom Charles H. Belvin of Portland is Pacific Coast representative.

The flat screens are of the Impco, bronze vat, Dunbar silent drive type manufactured by the Improved Paper Machinery Corporation of Nashua, New Hampshire. Kenneth B. Hall is the Pacific Coast representative. The flat screens are driven by Fairbanks-Morse motors through V belts and variable pitch sheaves which permit a speed variation of from 494 r.p.m. to 561 r.p.m.

Stock accepted by the flat screens is deckered over two 42 by 120 inch Impco deckers. These have wood vats, bronze cylinder moulds and bronze face wires. They are equipped with motor driven couch rolls which are synchronized with the cylinder motor, thus eliminating wire wear.

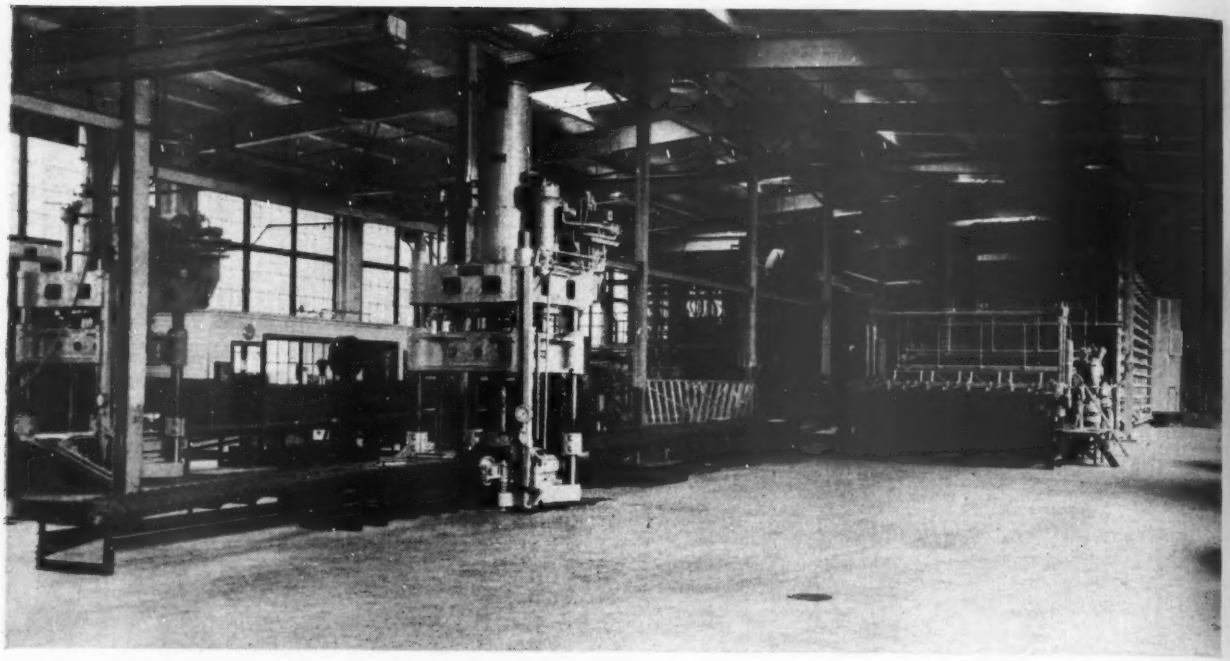
Deckered stock drops down through the floor into a 32 ton white tile lined concrete stock chest.

Noble & Wood Agitation

● The mill has three concrete white tile lined stock chests all equipped with Noble & Wood propeller type agitators. The chests are constructed with a midweather running longitudinally through the center and the propeller agitators are mounted in holes in the wall of this midfeather. They keep the stock in a thoroughly mixed condition.

There are eight Noble & Wood propeller type agitators in the new Bellingham mill, four single units and two duplex units. Each unit is entirely rubber covered with the exception of the journals which are of stainless steel. Noble & Wood Machine Company of Hoosick Falls, New York, are represented on the Pacific Coast by Kenneth B. Hall of Portland.

The agitators are driven by Fairbanks-Morse motors through Western angle type reduction gears manufactured by the Western Gear Works of Seattle.



THE DRY END OF THE TWO FLAKT DRYERS showing the cutting, weighing, pressing and baling equipment Testing room at the left.

FROM BELLINGHAM—The PUGET SOUND PULP & TIMBER CO

P. F. SKOOG
Plant Engineer
Puget Sound Pulp & Timber Co.

A Minimum of Pumping

● The simplicity of the screen building layout and its gravity flow is impressive. There are but four pumps in the entire building, one all bronze white water pump of 7,300 gallons per minute capacity driven by a 300 h.p. Westinghouse synchronous motor, a smaller white water pump for high head, a small vertical sump pump handling screenings from the Biffar refiner to the wet machine and one bronze stock pump driven by a 125 h.p. Westinghouse synchronous motor.

These four pumps as well as all other pumps in the Puget Sound Pulp & Timber Company's new mill were designed and manufactured by the Bingham Pump Company of Portland, Oregon, and are either bronze or stainless steel.

The Bingham Pump Company designed all pumps in the plant to permit the doubling of their capacity by simply changing impellers.

The screening building is designed to accommodate the equipment for producing 250 tons per day. Facilities were included in the screening building to permit the easy conversion of the plant to a high grade bleached sulphite mill whenever the change may prove desirable.

The pulp does not come in contact with iron from the time it leaves the digester until it is baled. All materials with which the pulp comes in contact in liquid form are corrosion resistant.

Stock and white water lines are of wood pipe with Everdur fabricated elbows and fittings, the fabrication being done by the Alaskan Copper Works of Seattle.

Screen tailings are put through a Biffar refiner and the rejected material is made into wet laps on a Sumner wet machine.

● All water used in Mill A and Mill B comes from the City of Bellingham's system. It is chlorinated to prevent slime formation in the mill systems by a Wallace & Tiernan chlorination system.

THE PULP SHEET IS FORMED on fourdriniers. Corrosion resistant metals are used where contact is made with the stock.

COMPANY'S OPERATIONS are INTEGRATED from FOREST

Drying

FROM the storage chest in the screen room the pulp is pumped to the machine head box. From there it flows down to the two drying machines by gravity being mixed in the pipe with the necessary white water to provide the proper consistency on the wire.

There are two drying machines each with a capacity of 125 tons per day. One machine drys the pulp from Mill A and the other from the new mill, Mill B.

The wet ends are of the fourdrinier type 126 inches in width with a 60 foot wire, two rotary suction boxes, a suction couch, three press rolls and a predryer. This predryer on each machine is equipped with two Foxboro automatic steam controllers.

The pulp sheet leaves the suction couch at 30 per cent air dry and enters the Flakt dryer at 52 per cent air dry. Two type L-5 Nash vacuum pumps are used on the rotary suction boxes, an L-7 Nash on the suction couch and an L-5 Nash vacuum pump on the felt suction box on each of the two drying machine fourdriniers. The vacuum pumps are driven by Fairbanks-Morse motors through V belts.

These two fourdriniers employ copper and bronze parts where contact is made with the wet pulp sheet. They were manufactured by A. B. Karlstad Mekanista Werkstad of Karlstad, Sweden. The wire pits are white tile lined to keep the white water from becoming contaminated. Table rolls and savealls are of copper.

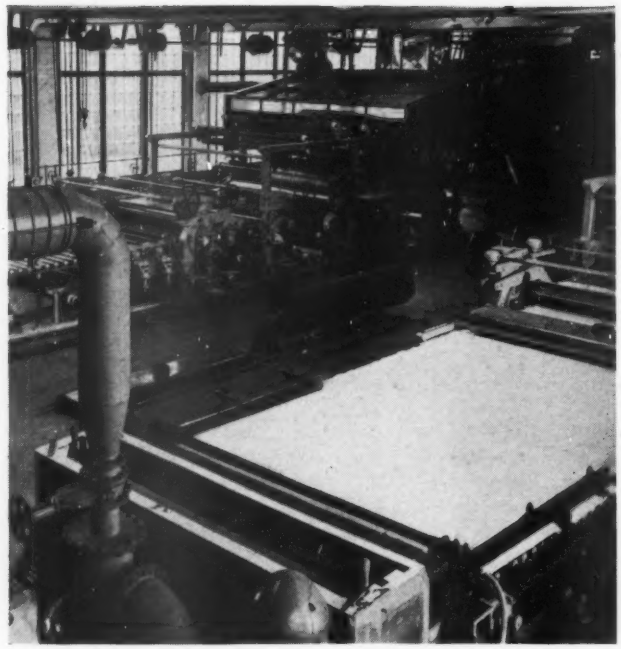
The drying sections are of the hot air type known as Flakt Dryers as they are manufactured by A. B. Svenska Flaktfabriken of Stockholm, Sweden.

● This installation of two Flakt dryers in the new mill at Bellingham is the second installation in the United States. The first was at the mill of the St. Regis Kraft Company in Tacoma, Washington, late in 1936. The Puget Sound Pulp & Timber Company selected them in the belief that they provided the maximum in uniformity, strength retention, cleanliness, color and hydrating qualities.

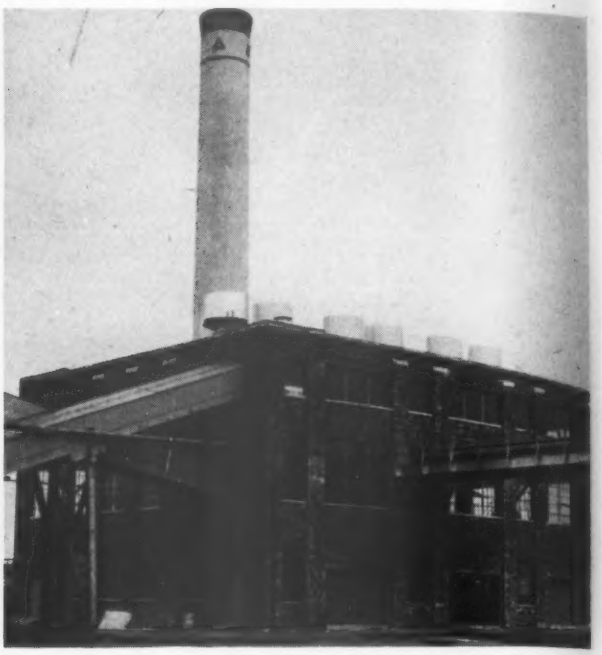
The Flakt dryer, designed by Svenska Flaktfabriken, consists of an enclosed drying chamber 105 feet long, 12½ feet wide and 16½ feet high. The roof, bottom and two longitudinal sides are entirely covered with sheet iron and fully insulated. The gables, or inlet and outlet ends are equipped with revolving windows.

Inside the dryer consists of a number of vertical intermediate sections, all alike. At each end is an end section where conveyor shafts and turning rolls are placed. The drying chamber is further divided into longitudinal, horizontal channels, separated by solid sheet iron partitions.

The pulp web passes back and forth inside the Flakt dryer thirteen times, hot air being constantly circulated against both sides of the sheet.



ANOTHER VIEW OF THE WET ENDS showing method of stock discharge onto the wire.



THE STEAM GENERATING PLANT supplies process steam for cooking and drying.

to FINISHED PULP—The COMPANY OWNS LARGE STANDS of P

HAROLD D. CAVIN of Cavin, Marshall & Barr, engineers who designed the mill and supervised construction.

Adjustable platforms are located at the inlet and outlet ends of the drying chamber. These platforms, which are intended principally for the workmen to start the machine, are vertically adjustable by means of manually operated controls.

The thirteen conveyors for carrying the pulp web through the machines are of very strong forged steel with carrying links, furnished with rolls and solid drawn tubes for carrying the web. The chain drives run on guide rails at the sides of the dryer. Heating coils are of forged, gilled pipes with connections placed inside the dryer.

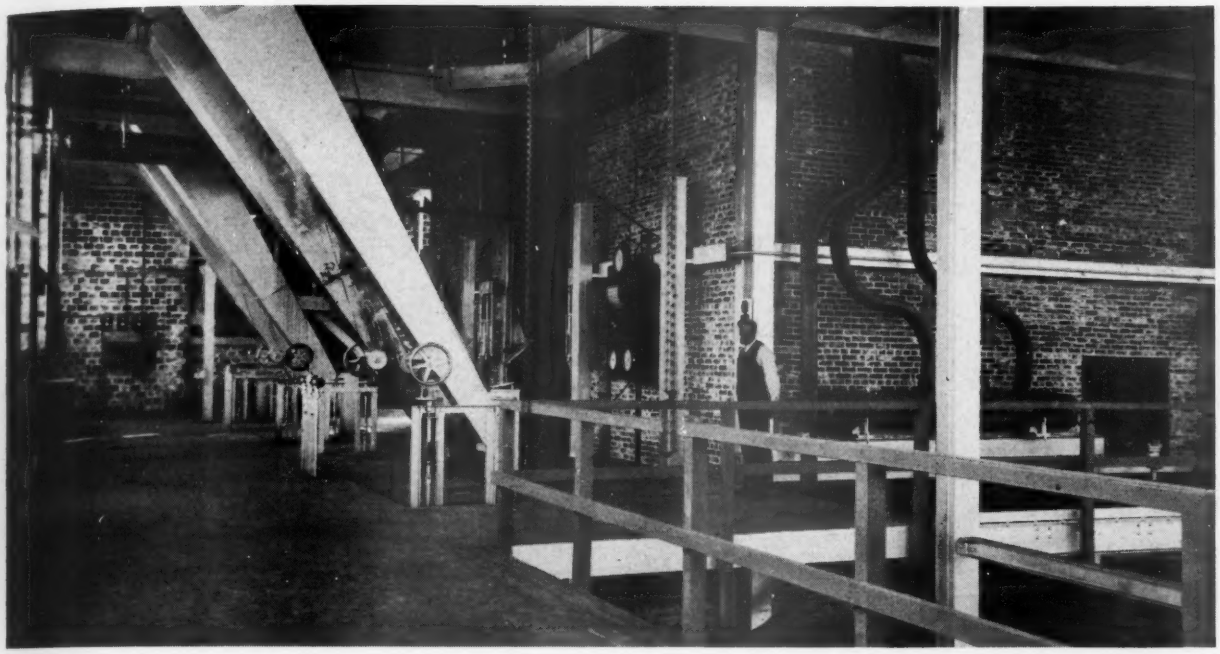
● The drying chamber is equipped with a disconnecting device for automatic disconnection of the fan dryer and the cutter in case of a rupture of the pulp web inside the drying chamber. This disconnecting device is combined with push button control.

A high percentage of heat is recovered from the vapor which is drawn by fan up from the dryer to the heat recovery system on the roof. This hot vapor performs a triple duty. It first heats the incoming air employed for drying and then, after having performed this function it heats water for the enclosed hot showers over the fourdrinier and also heats the air circulated in the machine room, keeping it at an even temperature.

The principal difference in the Flakt method of drying over other methods lies in the fact that the pulp web is never at any time in direct contact with a heated surface. This is said to be the system's chief advantage for it provides a gentle drying of the pulp sheet with very little loss of strength. Steam consumption is low and the dried sheet it is claimed will hydrate in the beater in approximately half the time required for cylinder dried pulp.

The complete drying machines, Karlstad fourdriniers and Flakt dryers were sold by A. H. Lundberg of Seattle, Pacific Coast representative for both companies.

Each drying machine is driven by a 75 h.p. 1200 r.p.m. Fairbanks-Morse 2300 volt motor through a



BOILERS ARE FIRED WITH HOGGED FUEL
and oil for auxiliary use » » » Space is provided for a third boiler when required.

DS of PULPWOOD TIMBER in the CASCADE MOUNTAINS EAST

line shaft. Belts take off to drive the several sections. Eight propeller fans on each Flakt dryer, sixteen in all, are driven by sixteen 15 h.p. 1800 r.p.m. Fairbanks-Morse motors.

Cutting, Baling

THE pulp web as it comes from the Flakt dryer is slit longitudinally by circular knife slitters and then cut into 30-inch lengths by a revolving cross cutter. The resulting sheets, 30 by 31½ inches, are transferred by a felt to the layboy. This layboy frame and drive rises automatically with the increasing height of the bales, the sheets being laid on a stationary conveyor table made up of a large number of small conveyor wheels. When the sheet piles have attained the required height a grid is run out to hold the sheets while the piles are removed from under the layboy by lowering the wheel conveyor table.

The table is automatically lowered on an incline sufficient to transfer the piles of sheet pulp by gravity to a wheel conveyor.

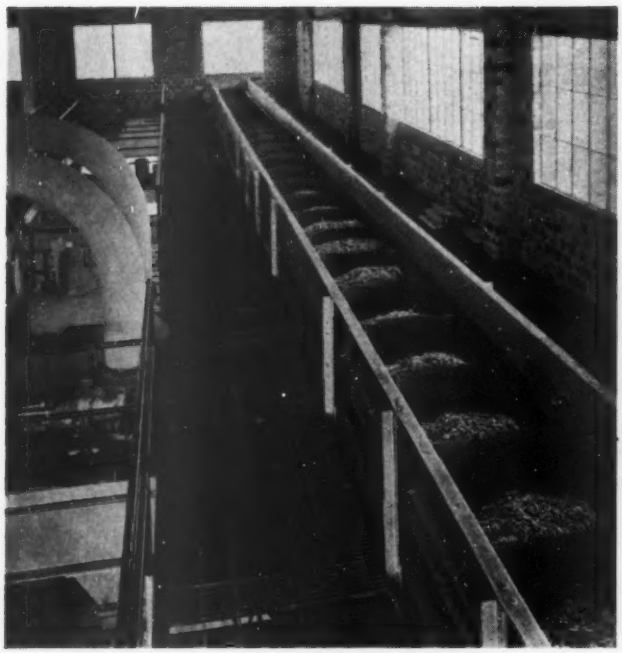
With the piles of pulp on the conveyor they are then conveyed at right angles to the layboy until they align with the gravity rolls. They then move by gravity picking up the bottom wrapper through a slot in the rolls, continuing on to the Fairbanks-Morse scales.

Sheets are added or taken off to bring the pile or bale as it will now be called, to an exact 400 pounds weight. The bale, as yet unwrapped, is then pushed down gravity rolls to the 600-ton hydraulic press.

Here it rolls on two steel belts which are carried on two spring mounted rolls. These rolls are spring balanced so as to just support one bale clear of the press platen. The bale is then compressed to the required size, 40 cubic feet per ton, the press released and the bale pulled out of the press onto the roller conveyor into which has been built a turntable.

• Two men, one on each side of the conveyor fold the wrappers around the sheet pulp, pass wires through slots in the turntable tying the bale in one direction with a hand wire tying machine. The turntable is then elevated about one inch and the bale turned 90 degrees, and two wires tied in the other direction. Thirteen gauge wire is used to make these four wire ties, two in each direction.

Bale stops are provided on the turntable to spot the bales and to keep the wire spacing uniform. After the tying operation is completed the bale stops are depressed and the bales pushed down the gravity rolls to a point underneath an overhead hoist. The same two baler men lower the hoist which is equipped with a grab. With this the bale is loaded onto wooden skids, 16 bales to the skid. The skids are then transferred to pulp storage by gas lift trucks, which are also used for freight car loading and transporting the pulp onto the dock for loading into ocean freight-



HOGGED FUEL is conveyed from the log breakdown plant or from storage to chutes into the boiler grates.

ALL BRONZE WHITE WATER PUMP handling 7,300 gallons per minute » » » Capacity can be raised to 14,600 gallons by changing impeller.

# of BELLINGHAM; DOES ITS OWN LOGGING and OPERATES

WOOD STAVE PIPING and Everdur elbows and fittings keep the stock clean.

ers. In storage the skids can be piled three high thereby utilizing maximum space.

Broke is handled by a Noble and Wood broke beater.

Steam Generating

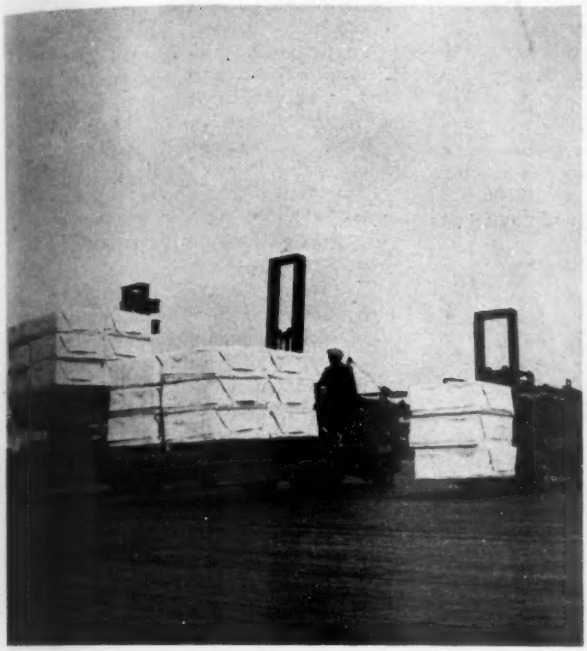
THE principal aim, in designing the steam generating plant was to obtain an unusually high degree of dependability coupled with simplicity of operation. The equipment is coordinated to provide high efficiency.

Two boiler units are now installed. The plant is arranged and equipment selected so that a third boiler can be added in the present building. Each boiler unit will burn hogged fuel or oil, providing the flexibility required for pulp mill operation. Each unit consists of a 645-hp. Babcock & Wilcox Stirling Boiler with water walls; Babcock & Wilcox Superheater; Babcock & Wilcox Air Heater; Babcock & Wilcox Oil Burners; extension furnaces; Diamond Soot Blowers; Diamond Bicolor Water Guage Glasses; Copes Feedwater Regulator; Buffalo Forge Induced and Forced Draft Fans; and instruments.

Each boiler unit will produce 50,000 lbs. steam per hour on hemlock hogged fuel, and up to 70,000 lbs. steam per hour on dry fir hogged fuel or oil. Each is designed for 200-lb. pressure and will be operated at approximately 180 lbs. There are water walls on all sides of the main combustion chamber.

The induced draft fan is of the cinder removal type, designed to remove 90 to 95 per cent of the cinders and ash, driven by a 100-hp. Westinghouse synchronous motor. The extension furnace is of the two-cell type, equipped with Economy Water-Cooled Grates, Bigelow-Liptak Arches, forced draft and overdraft dampers.

The boiler instruments are grouped in a panel on each extension furnace firing deck. The instruments include a Hays CO_2 Recorder; Hays



GASOLINE TRUCKS take pulp bales from machines to storage, into freight cars or onto dock for ship loading.

A WELL EQUIPPED LABORATORY contributes to the quality and uniformity of the finished pulp.

ITS OWN RAILROAD from TIMBER DOWN to TIDEWATER

Draft Gauges; Alnor Pyrometer; Thermometers; and Cochrane Flow Meters. Control of extension furnace and boiler draft is provided by dampers operating gear, with hand wheels conveniently located on the extension furnace deck. The Diamond Bi-Color Water Gauge indicates the boiler water level on a mirror located at eye heighth above the firing deck. Thus, the control of fuel, draft and combustion conditions may be maintained by the boiler operator from the extension furnace deck.

● The auxiliary equipment was selected with the same care as used in selecting the boiler units; the principal objective being to select economical units having a high degree of dependability, and to provide for continuous uninterrupted service. There are two Worthington Boiler Feed Pumps, one driven by a Fairbanks-Morse motor, and the second by a Westinghouse Steam Turbine. Feedwater heating and deaeration is provided for by a Cochrane Deaerating Heater with storage tank. The oil burners are supplied by a pumping and heating set consisting of two Worthington Duplex Oil Pumps and one Staples and Pfeiffer Oil Heater.

The piping is adequate for the present plant and for the addition of the third boiler unit. It is all-welded construction, shop prefabricated and assembled on the job. Welded fittings and flanges were used extensively. All valves on high pressure steam lines and boiler feed lines are of cast steel with stainless steel trim, designed for 300-lb. service.

The boiler plant was erected by C. C. Moore & Co. Engineers, of Seattle.

The boiler house building consists of concrete foundations and steel framework, encased in brick, presenting a very attractive appearance in harmony with the other pulp mill buildings.

The concrete chimney is 11 ft. in diameter by 150 ft. high, and was constructed by the Rust Engineering Company.

Boiler tubes are kept clean by the Hall System of boiler feedwater conditioning for which William R. Gibson of Seattle is Pacific Northwest representative.

Electric Power

PLANT engineer P. F. Skoog describes the modern electric power setup in the company's new mill as follows:

"From the Puget Sound Power & Light Company's transformer station located on the mill property all electric current is furnished at 2300 volts. This station has a capacity of 6000 kva and two sets of underground cables, each of 3000 kva capacity, carry the current to the two centrally located substations. One of these is located at the log cutup plant and feeds all the motors within this department. The other substation serves all other departments of the plant.

CLOSEUP OF ONE OF THE TWO FLAKT DRYERS showing steam piping and bearings for the pulp sheet conveyors.

"Two outdoor type oil circuit breakers, each of 175,000 kva breaking capacity, serve as a disconnecting means for the substation main-feeders, and each breaker may be tripped at will by an electric control switch mounted on the substation main panel. Provision has been made for two additional circuit breakers for future demand.

"The equipment in each substation is identical. Each consists of a 2300 volt switch board and a 440 volt switch board and a bank of 3—500 kva 2300/440 transformers. The 2300 volt switch board consists of a main panel and a series of 2300 volt feeder panels for the various motors operating on 2300 volt current. One panel serves as a main breaker center for the 3-500 kva transformers which are located on the outside of the building.

"Through a rigid bus these transformers are connected to the 440 volt switch board in the substation. Underground cables connected to the oil circuit breakers on these switch boards feed the various motor panels throughout the mill. Although all these circuit breakers have a capacity of 800 amperes the maximum load on the 440 volt feeders at this time has been limited to 400 amperes leaving ample possibilities for additional load.

"Sixteen centrally located motor panels of the dead front type serve the 230 odd motors throughout the plant.

"All motors over 50 h.p. operate on 2300 volts and there is now 2275 motor h.p. operating on the 2300 volt current. The remainder operates on 440 volts. The total connected h.p. is about 6000.

"Current for power factor correction is obtained from the six synchronous motors rated at 1100 h.p., all of which are designed for 80 per cent p.f.

"All starters for the 2300 volt motors are of the cubical design. Each starter is mounted in an individual compartment encased in steel, and each starter has over it its individual disconnecting switch.

"All motors exposed to water drip or spray are of the splash proof design."

All 2300 volt controls were furnished by the Westinghouse Electric & Manufacturing Company, as well as the synchonous motors. These include two 250 h.p. 360 r.p.m. motors on the two Sumner chippers; two synchronous motors on the forced and induced draft fans in the steam plant; two synchronous motors on vertical stock pumps; one 300 h.p. synchronous motor on a 7,300 gallons per minute centrifugal white water pump which can be changed to handle 14,600 gallons by installing a new impeller; and a 125 h.p. synchronous motor on a bronze stock pump.

The General Electric Company furnished the switchboards for the electric substations and the distribution board for the 440-volt motors in the chipping plant.

There are 210 Fairbanks-Morse electric motors in the new Bellingham pulp mill with an approximate total of 3,800 horsepower. This is triple the capacity and number of motors in Mill A.

Laboratory and Control

THE new laboratory is the center of Superintendent Ekholm's technical control system. Process control and the laboratory is in charge of chief chemist E. O. Ericsson, a graduate in chemical engineering from the University of Washington. Mr. Ericsson has been with the Puget Sound Pulp & Timber Company since 1935.

The laboratory, a thirty by fifty foot building, is located midway between the new mill (Mill B) and the original mill (Mill A). It houses two offices, a chart room, a general laboratory and a pulp testing laboratory complete with a constant humidity room. Here is coordinated the technical work of the various departments. Charts and reports are arranged to guide the operators in producing uniform quality. Raw materials are tested, boiler water is analyzed, standards set for control work, standard solutions prepared and a number of other related jobs are performed in the laboratory.

The general analytical laboratory is piped for gas, compressed air, distilled water, vacuum, and hot and cold water. The equipment consists of a complete set of instruments and supplies for all analytical work. A ventilated hood is provided for work involving obnoxious gases and fumes.

Opening off the general laboratory is a balance room with a separate concrete foundation to avoid vibration.

The pulp testing laboratory is equipped with two one and one-half pound Niagara type beaters. The standard sheet making method is employed. The sheets are dried in frames in a room kept at a constant temperature and humidity by equipment designed and installed by the J. O. Ross Engineering Corporation. In this room the sheets are tested for bursting, tearing, and folding strengths. The equipment employed includes the Mullen Tester, Elmendorf Tear Tester, M. I. T. Folding Endurance Tester and a Schopper Folding Endurance Tester.

A ROW OF GLISTENING SCREEN PLATES » » » All are chromium plated.

Testing of the sheet pulp begins immediately it comes from the Flakt dryers. Samples are drawn from each bale and tested for moisture in a room located at the end of the drying machines. The room is equipped with a laboratory scale, a Schopper Ream Scale, a stand for counting dirt specks in a wetted sheet, and an oven with forced circulation manufactured by the J. O. Ross Engineering Corporation. One tester on each shift handles this important routine work and in addition to testing the pulp for moisture and cleanliness, draws samples for testing in the laboratory.

Technical Control in Entire Mill

● Each step in the processes for producing quality unbleached sulphite pulp not controlled by instruments is under constant technical control. Testing and sampling stations at each step enable the operators to maintain uniformity.

Emphasis is placed on tests and information that actually improve and stabilize the final product rather than on extensive testing not directly affecting quality.

Exterior Conveying

THE designing of the conveyors for the handling of the raw materials in the new mill was given careful consideration by the engineers, Cavin, Marshall & Barr who faced several rather unusual problems. It will be noted in the photograph that the new buildings are located to permit future expansion at a minmum of inconvenience and cost. This made it necessary to consider possible future additions to the buildings when planning the conveyors with the subsequent enlargement of the conveyors. These were so laid out as to facilitate expansion of the conveying system at low expense.

Another problem was the conveying of chips to the original unbleached sulphite pulp mill, now called Mill A.

The conveying problems can be quickly recognized by a reference to the line drawing toward the end of this article which shows the location of the buildings and the outside conveyors connecting them.

Handling Hogged Fuel

● Provision is made for two sources of hogged fuel supply to insure ample fuel supplies for the steam generating plant. All wood refuse from the sawmill, the wood cleaning plant and the chip screens is fed through the hogs before being conveyed to the steam plant boilers or to storage.

To amplify this source a dump hopper and feeder conveyor is provided for the acceptance of hogged fuel delivered by truck from sawmills in Bellingham.

All wood refuse is gathered by conveyors at a point near the wood refuse hog, is conveyed by 30-inch belt conveyor No. 11 to hogged fuel storage bin where it is discharged into the bin, the fuel being removed from the bin to conveyor No. 12 located under the bin. Conveyor No. 11 over the bin can, however, discharge part or all of its load into the storage bin or the fuel can be discharged over the head end of this conveyor into conveyor No. 14 which takes it to the boiler house without going to the storage bin. Conveyor No. 15 in the boiler house serves the boilers and is the latest design in double strand boiler feeding type conveyor employing Link-Belt rivetless chain. All excess fuel not discharged to the boilers by conveyor No. 15 is returned to the hogged fuel storage bin from boiler house conveyor by 30-inch belt conveyor No. 16.

Chip Conveying

● The chips, after being screened and the fines and oversize removed, are delivered onto belt conveyor No. 8 which operates on a steep incline, and in turn delivers the chips to belt conveyor No. 8-A. This belt carries them over the top of the sulphur storage building into the top floor of the digester building directly above the storage bins. Belt conveyor No. 8-A is 36 inches in width, and is so designed that it will discharge chips in the bins or convey them to the end of the building and drop them into a chute running down the outside of the digester building to belt conveyor No. 20, which carries them over to the original pulp mill, Mill A.

In the sawmill, wood cleaning plant and chipper room, all conveyor chains and belt conveyors which carry the cants and the chips, were manufactured by Link-Belt.

Storing Sulphur

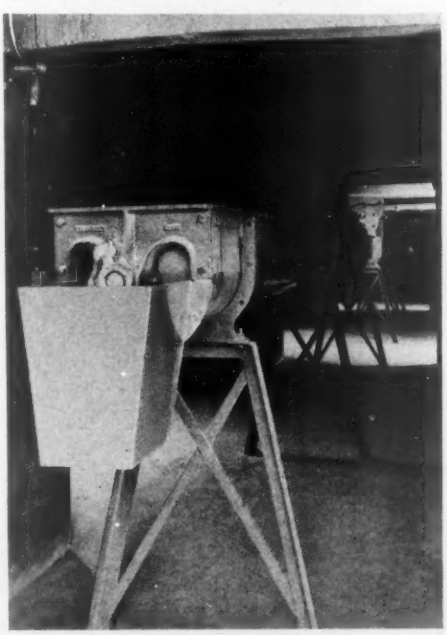
● Sulphur for acid making is received by ocean freighter from the Texas Gulf Sulphur Company's mines in Texas. The cargo is discharged at the dock by means of a dump bucket attached to the ship's tackle. A small receiving hopper takes the sulphur and by means of a special feeding screw discharges evenly onto a 24-inch belt conveyor running to the four concrete storage silos.

On this conveyor, and just above the screw feeder, a Merrick Weightometer is installed for the purpose of weighing the sulphur automatically as it is transported to the storage bins. The Weightometer weighs and records the tonnage of sulphur received, thereby giving the operators an accurate record of all sulphur going into storage.

Each concrete sulphur silo, as the engineers term them, is provided with a rack and pinion discharge gate on the bottom. From these gates a special type feeding screw conveyor is used which collects the sulphur and discharges it in turn to a long screw conveyor extending under all four silos. The screw conveyor discharges into small bin trucks which stand on a Fairbanks-Morse scale as they are being filled. When the desired weight of sulphur is in the truck, the conveyor is stopped by the push button control. The truck is then wheeled a few feet to the sulphur burner room where an elevator lifts each truck to the top of the two Sumner sulphur burners for discharge therein.

General Conveyor Data

● Belt conveyor No. 11, handling hogged fuel, and belt conveyor No. 8-A, handling chips, and belt conveyor No. 10, handling sulphur, discharge their loads into storage by



A NOVEL SCREW CONVEYOR handles the discharge of sulphur from the storage bins.

means of special type scraper trippers so designed that a portion of the load or all of it may be discharged into storage. In the case of hogged fuel and chips these scraper trippers permit all or part of the load to be used immediately or placed in storage. These trippers can be moved by hand to any location above the storage bins.

All the main conveying units in the new mill are driven by Link-Belt motorized speed reducers equipped with Fairbanks, Morse electric motors and Link-Belt Silverlink roller chain. Link-Belt also furnished the sawmill or class H chain, the belt conveyor idlers, which are of the roller bearing anti-friction type, and the screw conveyors employed in sulphur handling.

Site Preparation

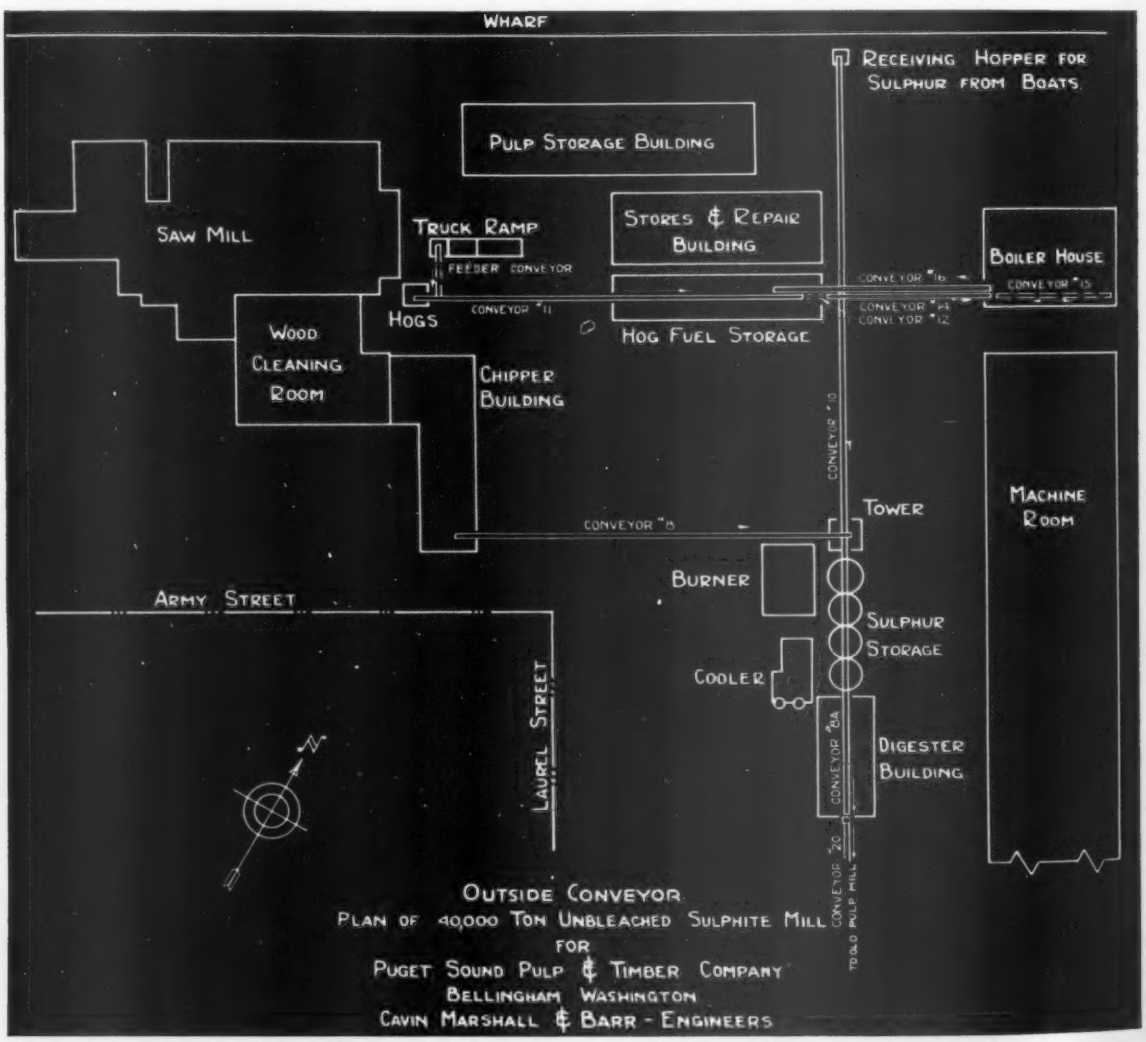
● Much work was necessary in preparing the site for the new plant of the Puget Sound Pulp & Timber Company at Bellingham. Cavin, Marshall & Barr first had to clear the site of the old Morrison Mill Company wooden buildings.

After this was done the site was hydraulically filled in with 60,000 cubic yards of sand and clay dredged from the Whatcom Creek waterway. This work served a two-fold purpose; to deepen and widen the channel, 35 feet at mean low tide and 150 feet in width, and to fill in the site. After the filling the necessary piling was driven for the mill buildings.

Alongside the new channel a 900 foot dock was built to accommodate ocean freighters. It is 80 feet in width, is supported by mineralized piling which is proof against destruction by marine growths and supports the new pulp warehouse.

In Conclusion

● This outline of the Puget Sound Pulp & Timber Company's new and modern unbleached sulphite mill at Bellingham was prepared by PACIFIC PULP & PAPER INDUSTRY with the assistance of the engineers, Cavin, Marshall & Barr, the operating personnel, Superintendent Ekholm, Chief Chemist Ericsson and Plant Engineer P. F. Skoog, and of a number of equipment manufacturers who participated in the construction of the new plant. To them this journal expresses its appreciation for their help.



THE PRINCIPAL MILL BUILDINGS AND CONNECTING CONVEYORS are shown in the above diagram. The conveyors are referred to by number in the conveying section of the accompanying article.

Oregon to Vote on Anti-Pollution Bill

• An anti-pollution bill will come before the voters of Oregon in November, sponsored by the Stream Purification League of Oregon, which is headed by Rufus C. Holman, Oregon state treasurer. This stream purification bill is one "providing for the purification of the water of rivers, streams and lakes, watersheds and coastal area of Oregon, establishing a sanitary authority for administration and setting up regulations for elimination of pollution, sewage and other wastes."

The initiative measure was filed early in July at Salem, the necessary 20,020 signatures having been obtained.

• Provisions of this proposed initiative measure may be summarized as follows:

Section 1. Declares public policy to be to preserve natural purity of the water of all streams, etc., in the interests of public welfare, health, recreational enjoyment, fish and bird life, and to encourage cooperation in preventing and controlling pollution.

Section 2. The dicharge of sewage or other wastes which are or may become injurious to human or aquatic life is declared to be not a reasonable or natural use of the waters, and is against public policy.

Section 3. Creates within the state board of health a division or Sanitary Authority.

Section 4. Sanitary Authority shall consist of the state health officer, state engineer, fish commission chairman, and three members appointed by the Governor, one from each congressional district, and to serve four years. The state sanitary engineer to be secretary.

Section 5. The general powers and duties of the Authority are:

a. To encourage voluntary cooperation in the program.

b. To formulate rules and regulations for control of pollution, establish standards of purity of water in various sections.

c. To conduct research, prepare programs pertaining to the pollution problem.

d. To receive complaints of pollution, investigate and take action.

e. To conduct public hearings on complaints or investigations and to publish its findings and recommendations for correction of conditions and enforce laws and the rulings of the Authority.

f. To enforce compliance with existing laws or those later enacted relating to pollution.

Section 6. The Sanitary Authority is authorized to receive monies from any source and use funds for study and control of pollution.

Section 7. Plans and specifications of all new sewage systems, plants, waste treatment or reduction plants, or major modification of existing sewage systems or other waste plants, shall be approved by the Sanitary Authority before construction.

Section 8. The Sanitary Authority is authorized to represent the state in all matters relating to pollution of waters.

Section 9. Proceedings to abate alleged pollution nuisances, in the name of the state, may be instituted at law or in equity upon petition of the attorney general or local district or city attorney.

Section 10. The Sanitary Authority may make a stipulation with any alleged pollution offender allowing a period of time for correction of the condition if Authority finds terms are not being carried out in good faith, it may then proceed to enforce order by proceedings to abate a nuisance. If any person brings an abatement suit directly, without proceeding, through the Authority, and if such abatement would threaten public health by closing of a sewer or threaten damage to industrial operations, the Authority may intervene in the public interest and present facts to the court and urge that the defendant be given sufficient time, before an injunction be made permanent, to remedy the condition.

(This is the heart of the bill, which guarantees fairness to industry and all concerned. Without it, pulp and paper plants might be subject to closure at any time.)

Section 11. Provides that any party aggrieved by an order of the Sanitary Authority, may appeal such order to the Circuit Court, in cases where no stipulation has been made previously, and sets forth the manner of appeal.

Section 12. In case of inconsistency with provisions of any other law, this act shall be controlling.

Section 13. The usual safety clause, to prevent unconstitutionality of any clause from affecting the whole.

Is Cottonwood Newsprint New?

Newsprint of 100% cottonwood and of cottonwood mixed with spruce or hemlock made at Oregon City NEARLY FIFTY YEARS AGO

• It is reported in the press that Dr. Charles H. Herty, head of the Herty Foundation Laboratory in Savannah, Georgia, recently told a convention of Southern newspaper publishers at Edgewater Park, Mississippi, that he had "discovered" that cheap newsprint can be made from 80 per cent cottonwood and 20 per cent Southern pine. The same news dispatches stated that, "The cottonwood, a tree of extremely rapid growth, never before has been used in this field."

• The record contradicts this assertion. On the Pacific Coast groundwood pulp was made from cottonwood in April, 1885, at Camas, Washington, and probably made into newsprint. In 1890, when the mill of the Willamette Pulp & Paper Company was completed at Oregon City, Oregon, it started off with the production of a 100 per cent cottonwood newsprint. Later the newsprint was made of a mixed furnish of cottonwood and spruce and still later of cottonwood and Western hemlock.

• When the Powell River Company first began operations cottonwood was employed in the manufacture of newsprint.

• These facts are recalled by W. Bruce Zumwalt, retired superintendent of the Powell River Company, now living in Portland, Oregon. Mr. Zumwalt helped build the Willamette Pulp & Paper Company's mill at Oregon City and worked there when the cottonwood newsprint was made. He went to Powell River when operations began and remained there until about five years ago when he retired.

• The use of cottonwood in newsprint was abandoned by Pacific Coast mills for hemlock and spruce which produces a higher quality sheet. Undoubtedly cottonwood was employed in making newsprint in New England, Northern New York and in the Lake States either prior to or at the same time it was used on the Pacific Coast.

• Cottonwood groundwood is not new in newsprint either as 100 per cent furnish or mixed with other species. It is at least 50 years old.

Fibreboard Officials Promoted

● The officers of Fibreboard Products, Incorporated, were promoted last month, according to an announcement by the company and one change made in the company's board of directors.

J. D. Zellerbach was elevated from president to chairman of the board; D. H. Patterson, Jr., became president and general manager, advancing from the position of vice-president.

T. Noel Bland became vice-president and assistant general manager instead of secretary-treasurer.

N. M. Brisbois, formerly general operating manager, is now vice-president in charge of production.

E. J. Farina is now vice-president in charge of sales instead of sales manager, his former title.

H. C. Hobbs advanced from assistant to secretary of Fibreboard Products Incorporated. A. F. Garvin became treasurer. B. R. Colkett is now assistant secretary-treasurer and Dorothy Hanson is second assistant secretary-treasurer.

Harold L. Zellerbach, president of the Zellerbach Paper Company was elected a director of the company, replacing Edward M. Mills, president of Rayonier Incorporated, who resigned.

The company has declared the regular quarterly dividend of $1.50 per share on the prior preferred stock payable August 1st to stock of record July 16th.

G. A. Macklem on Coast

● Mr. and Mrs. George A. Macklem and daughter are at present visiting the Pacific Coast. Mr. Macklem is in charge of sales for the Beloit Iron Works of Beloit, Wisconsin. The family stopped in Los Angeles first with a few days visit in San Diego and planned to go from Los Angeles to San Francisco next, from where they would continue up the coast to Portland and Seattle.

Oliver Porter Makes Coast Visit

● During the early part of July, Oliver M. Porter, secretary of the United States Pulp Producers Association of New York City, visited Pacific Northwest pulp mills.

McCurdy Elected Vice-President of National Superintendents

● L. S. McCurdy, chairman of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association, was honored by the Association at its annual meeting in Toronto last month by election to the office of fifth vice-president.

Mr. McCurdy, accompanied by Mrs. McCurdy, attended the Toronto meeting. He is paper mill superintendent of the Port Townsend Division of the Crown Zellerbach Corporation.

Pacific Mills Reports Improved Profit

● The annual report of Pacific Mills, Limited of Ocean Falls, British Columbia, for the fiscal year ending April 30th, 1938, showed a net profit of $825,160 after depreciation, depletion, interest and income taxes, equal to $9.40 a share on 75,000 common shares after allowing for regular dividends on 19,989 shares of $100 par value 6 per cent preferred. This compares with net profit of $576,658 in the preceding fiscal year, equal to $6.09 a share on the same number of common shares after preferred dividends.

The company in its fiscal year April 30th distributed $4 a share in common dividends, aggregating $300,000, against $2 a share or $150,000 in the preceding year.

Current assets on April 30th totaled $2,975,741, including $607,179 cash and $1,966,781 inventory, and current liabilities totaled $1,588,839. A year previously current assets were $2,601,831, cash $434,260, and current liabilities $1,000,750.

Substantial plant improvements were undertaken but not fully completed during the year, and the amount spent in this direction totaled $1,031,702. To complete improvements now in progress will require expenditures approximating $500,000 during the current year.

Pacific Mills on January 20th paid $150,000 in reduction of the bank loan incurred to retire bonds, and the balance of this loan as of April 30th was $450,000. It matures in equal annual installments, the annual interset rate being 3 per cent.

J. D. ZELLERBACH
Chairman of the Board
Fibreboard Products, Inc.

D. H. PATTERSON, Jr.
President & General Manager
Fibreboard Products, Inc.

H. C. HOBBS
Secretary
Fibreboard Products, Inc.

He was forever getting

Stuck *with his* Sticker

Read how Shell helped this California planing mill superintendent eliminate frequent bearing failures on the high-speed sticker

As often as twice a month, Jim Hilgrove, superintendent of Moore and Garlick's Sacramento planing mill, was stuck with overheated bearings on the high-speed sticker. Jobs stacked up . . . waiting . . . while costly bearing replacements were made.

Up against it, Hilgrove called in the Shell man. Investigation found a condition due to faulty heat transfer and fluid friction. The Shell man recommended a lower viscosity lubricant (the proper grade of Shell Turbo Oil) and suggested a way to drain this oil in small amounts to the proper level.

Result: trouble-free operation now at 6000 r.p.m.—on equipment that had been giving them a great deal of trouble previously at 3600.

And an estimated saving of $950 a year in replacement costs and loss-of-machine-time.

As in this case, so in hundreds of others throughout the lumber industry, Shell is meeting the challenge of hard-to-solve lubricating problems. Behind the Shell representative are all of Shell's resources and world-wide facilities and experience. These are available to you, too.

Phone your nearest Shell office, or write to Shell Industrial Lubricants Division, Shell Building, San Francisco, California.

SHELL MILL LUBRICANTS SHELL

ENGINEERED FOR YOUR 4 BASIC OPERATIONS:

POWER DEVELOPMENT	SPEED CHANGING	POWER DISTRIBUTION	POWER OFFTAKE

STEBBINS LININGS AGAIN SELECTED

The Puget Sound Pulp and Timber Company has installed Stebbins "Semco" linings in its new mill at Bellingham, Washington.

Stebbins is proud of the fact that Puget Sound Pulp & Timber Company has again adopted "Semco" lining as standard equipment.

For over half a century leading pulp and paper mills of North America have been installing "Semco" linings to assure low maintenance cost and uninterrupted operation.

Let us demonstrate the superiority of Stebbins linings and service the next time you line a new vessel or reline an old one.

ABSORPTION TOWERS
ACID ACCUMULATORS
ACID RECOVERY TANKS
ACID STORAGE TANKS
ACID TANKS
ACID TOWERS
BEATERS
BLEACHING TANKS
BLOW PITS
CHESTS
CHLORINATORS
COMBUSTION CHAMBERS
CONVEYORS
COOLERS
COOLING TOWERS
DIGESTERS
DRAINS
FILTERS
LEACHING TANKS
PICKLING TANKS
PLATING TANKS
SATURATORS
SCRUBBER TOWERS
SEPARATORS
SLUDGE TANKS
SPECIAL EQUIPMENT
SULPHUR BURNERS
SULPHUR MELTERS
SUMPS
TANKS (Acid, Alkali)
TOWERS
WASHER VATS

SEMCO

Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE, WASHINGTON

T. NOEL BLAND
Vice-President & Assistant General Manager
Fibreboard Products, Inc.

Acquires Large Distributor

● During the last fiscal year, the company acquired for $307,058 all the capital stock of Hudson Paper Company, Ltd., paper jobbers with headquarters in Winnipeg and branches in Regina, Saskatoon, Calgary and Edmonton. Of the purchase price $60,000 was paid in cash, the remaining $247,058 being payable in four equal annual installments, commencing November 30th of this year.

Sales for the year increased about 2 per cent in dollar volume, but tonnage sales declined nearly 14 per cent.

A. B. Martin, president of Pacific Mills, Ltd., says the company's business suffered during the latter part of the fiscal year in reflection of the general business recession, and it became necessary to curtail operations because of the decreased demands for paper and pulp products. "Owing to lack of orders," he said, "the present output of the mill is substantially below normal."

Dr. Jahn Leaves Idaho for Syracuse

● According to an announcement just made by the New York State College of Forestry at Syracuse University, Dr. Edward C. Jahn, class of '25 has been appointed to succeed Dr. Floyd Peterson, class of '24, as professor in the Pulp and Paper Department. This change is effective as of July first. Dr. Jahn received his M. S. in '26 at the college, and his Ph. D. at McGill in 1929. He majored in pulp and paper in Syracuse and in cellulose chemistry at McGill. He held a Tappi fellowship in the American Scandinavian Foundation in 1929 and 1930 and did work in the pulp and paper industry in Sweden. From 1930 to November 1935, he was associate professor at the University of Idaho and subsequently, professor of forestry.

He organized research in the chemical and mechanical utilization of wood at Idaho and during the past eight years has been responsible for wood chemistry and utilization research. He designed and laid out the floor plan and purchased all equipment for the wood conversion laboratory at Idaho. He was in charge of the curriculum in wood utilization technology and taught courses in wood industries, utilization technology I and II and wood technology and wood chemistry.

He has carried on research in fireproofing of fibreboards, physical testing of fibreboards, gelatinization of pulps, chemistry of true fir oleoresin; seasonal distribution of arabogalactan in larch and the plasticization and gelatinization of sawmill wastes.

Dr. Jahn is a member of the following scientific organizations: American Chemical Society; Technical Association of the Pulp and Paper Industry; Society of American Foresters; Northwest Scientific Association Sigmi Xi (president elect). In 1932 he was chairman of the Waste Utilization and Waste products group at the Fourth Sawmill Engineering Conference at Everett, Washington. He was co-chairman of Forest Products Symposium of Canadian Chemical Convention, Vancouver, B. C.

Dr. Floyd Peterson assumed his duties with the Dow Chemical Company, Midland, Michigan, as assistant director of cellulose research July 1.

Davis Named President Employees Association

● At the annual convention of the Pacific Coast Pulp & Paper Mill Employees Association held in Long Beach, California, at the end of May, Charles F. Davis of Salem, member of the International Brotherhood of Paper Makers, was elected president.

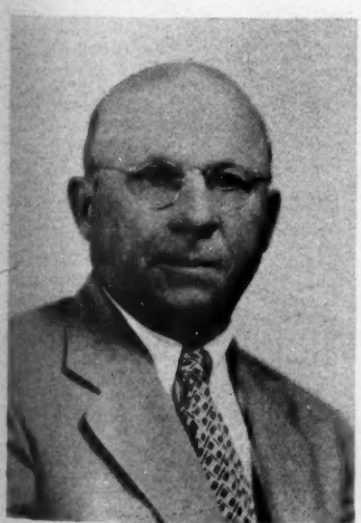
Maxwell Loomis of the same union in Port Townsend, was reelected secretary-treasurer. The vice-president is to be elected by the executive board.

On the executive board are W. C. Barnes of Camas, Charles Fidler of Oregon City and Ed Hall of Vernon, California, representing the International Brotherhood of Pulp, Sulphite and Paper Mill Workers; and, R. T. Drummond of Stockton; Percy Polang of Port Angeles and Clyde Johnson of Camas, representing The International Brotherhood of Paper Makers. Stockton, California, will be host to the convention in 1939.

Walter Barker Married

● Walter Barker, president of the Improved Paper Machinery Corporation of Nashua, New Hampshire, was married June 28th to Miss Irene Hyman in Nashua.

Mr. Barker has many friends in the Coast industry through his frequent visits with Kenneth B. Hall, Impco's Pacific Coast representative.



N. M. BRISBOIS
Vice-President
In Charge of Production
Fibreboard Products, Inc.

A. F. GARVIN
Treasurer
Fibreboard Products, Inc.

E. J. FARINA
Vice-President
In Charge of Sales
Fibreboard Products, Inc.

Pulp and Paper Industry Improves Safety Record

Frequency Rate Below Average For All Industry in 1937

● Figures recently prepared by the Washington State Department of Labor and Industries covering the frequency and severity of industrial accidents show that the pulp and paper industry has made a remarkable record in safety work, and that its accident rate is much lower than that of industry in general.

The frequency rate is now approximately 25 per cent less than that of all industry, while the severity rate is more than 50 per cent less.

In 1937, the pulp and paper industry showed a frequency rate of 35.55 claims for compensation per 1,000,000 hours of work, while the rate for all industry was 47.52. The rate for logging was 157.10 and for sawmilling 65.14, a great deal higher than that for those engaged in the manufacture of pulp and paper. The only comparable rate in wood products manufacture was that of woodworking plants, planing mills, etc., which had 37.00 claims per 1,000,000 hours of work.

In severity, or lost time, the record of the industry was even more favorable. All industry had a severity rate of 5,520 days time lost per 1,000,000 hours of work, while pulp and paper plants had only 2,522 days time lost. Logging was nearly ten times higher with 21,443 days time lost per 1,000,000 hours work, while sawmilling had 6,966, and woodworking plants, 3,101.

● All industry has shown a reduction in both severity and frequency of compensable accidents in recent years, but the reduction of the pulp and paper industry has been especially striking. This has taken place chiefly in the past three years, during which time extensive safety work has been carried out in practically all plants. The tables below show the trend, and also the fine showing made by the pulp and paper industry compared with that of other timber-using activities.

Frequency
Number claims per 1,000,000 hours work.

Year	Pulp & Paper	Logging	Saw-milling	Planing etc.	All Industry
1925	37.60	84.24	59.37	47.28	51.04
1926	48.98	94.44	62.16	46.58	53.10
1927	53.82	99.07	65.49	45.90	54.50
1928	52.55	105.21	63.60	42.73	54.48
1929	54.09	115.98	66.09	46.01	56.03
1930	50.23	127.70	68.14	48.48	55.00
1931	40.05	168.79	70.95	46.41	55.71
1932	42.30	185.66	67.24	49.78	52.29
1933	42.81	145.41	69.26	46.02	49.06
1934	44.69	145.58	67.19	45.98	49.51
1935	44.43	141.61	69.97	41.62	50.97
1936	34.77	149.96	67.70	39.56	51.86
1937	36.55	157.10	65.14	37.00	47.52

Severity
Days time lost per 1,000,000 hours work

Year	Pulp & Paper	Logging	Saw milling	Planing etc.	All Industry
1925	2,853	13,854	5,328	3,677	6,004
1926	2,887	15,170	5,199	2,799	5,923
1927	3,643	16,301	6,100	4,068	6,168
1928	4,976	19,860	6,781	3,475	6,752
1929	3,621	21,463	7,758	3,555	6,910
1930	3,064	20,316	6,726	3,855	6,500
1931	3,865	28,870	7,472	4,159	7,386
1932	4,715	26,657	7,619	3,622	5,918
1933	4,612	23,431	5,626	3,578	5,943
1934	2,728	22,803	6,504	3,081	5,701
1935	4,136	26,930	7,943	3,083	6,823
1937	2,522	21,443	6,966	3,101	5,520
1936	2,993	21,003	5,999	3,284	5,789

Washington Pulp First Aid Team Does Well

● A fine showing was made by the first aid team of the Washington Pulp & Paper Company in the Statewide First Aid Contest held at Seattle on May 14. In the divisional scores, in which all teams performed the same problems, they were well ahead of all other competing teams, having a score of 96.8, three points ahead of the nearest competitor.

In the final contest to decide the state championship, two problems were given the contesting teams. On the first, the Port Angeles crew dropped some points, but made a perfect score on the second. While they came out with a final score of 96.6 in the championship contest, they were in third place, the Pacific Coast Coal Company taking first with 98.8 and the Long Bell Lumber Co., Ryderwood team, taking second with 97.2.

In commenting on the contest, Fred Pontin, state first aid instructor, said, "Despite the fact that they did not take first place in the final contest, they gave a very fine performance, and proved beyond any question of doubt that they are of championship caliber."

West Linn Horseshoe Club Has Party

● The Horseshoe Club of the West Linn mill of the Crown Willamette Paper Co., division of Crown Zellerbach Corporation, held their annual picnic July 10 at Grants Park on the Clackamas River. Some forty executives, foremen and sub-foremen attended the gay get-together.

The crowd played baseball, and had a horseshoe pitching tournament. Bob Austin, sawmill foreman, won the 1938 championship in the horseshoe competition.

Wm. Botwell, chief electrician of the plant, was chairman of the committee for the event. Assisting him were Ralph Pratt, plant engineer, Jan Haugerod, sulphite foreman, and Art Lindsay, filter plant superintendent.

Camas Vacations

● Numerous familiar faces have been missing in recent weeks in the Camas plant of the Crown Willamette Paper Co., division of Crown Zellerbach Corporation, because of the vacation season.

George Charters, assistant mill manager has been in California on vacation with his family. Others away for the same purpose included Howard Green, manager of the order department, Paul Millard, finishing superintendent, and Frank Province, mill fire chief, and Mayor of Camas.

A. G. "Buff" Natwick, assistant mill manager, will be among the missing for a couple of weeks starting August 12, when he goes to the Wallowa Lake country in Eastern Oregon to deplete the fish supply.

Grondona Moved To New York

● Charles A. Grondona, resident manager of the National Paper Products Company's Carthage, New York, mill since 1928 and before that at Port Townsend, was recently promoted to other work for the company with headquarters in the New York City office.

Peter T. Sinclair succeeds Mr. Grondona as resident manager at Carthage.

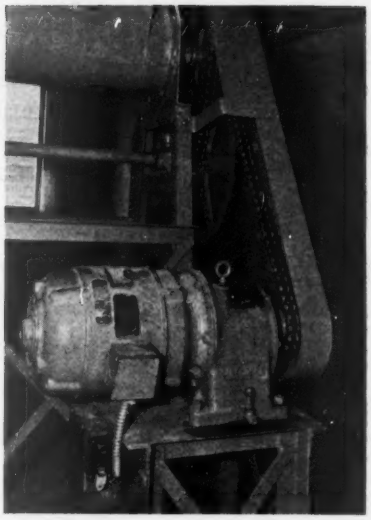
New Pulp Mill Chooses Fairbanks-Morse Equipment

Past performance at the original plant of the Puget Sound Pulp & Timber Co. determined the specification of Fairbanks-Morse motors at their new unbleached sulphite mill in Bellingham, Wash.

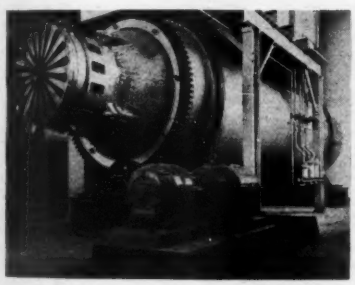
Over ten years ago, Fairbanks-Morse motors began "working" in the original Bellingham mill of the Puget Sound Pulp & Timber Co. And since then, these F-M motors have been establishing an enviable record by operating almost continuously for 24 hours every day.

Such undeniable proof of motor stamina and dependability led to the decision to again specify Fairbanks-Morse motors—this time, for the new mill. The new Bellingham plant contains approximately 210 Fairbanks-Morse motors, totaling about 3800 hp. This triples the original capacity and number of F-M motors installed in the first mill.

Throughout the Pulp industry, Fairbanks-Morse ball-bearing motors are daily proving their greater dependability and lower operating and maintenance cost. There is an F-M ball-bearing motor to fit your specific needs—talk over your motor problem with our engineer. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill.

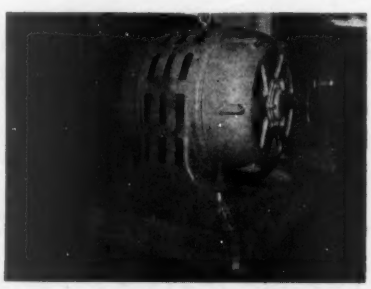


One of several Fairbanks-Morse Link-Belt gear motors. In the above view, the motor is driving a sulphur conveyor.

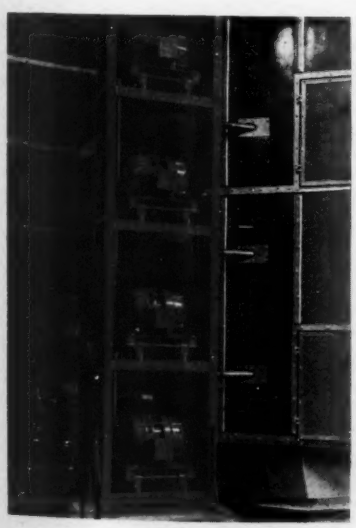


Sulphur burner in the new Bellingham mill being driven by Fairbanks-Morse ball-bearing motor.

One of the two Fairbanks-Morse type QV, 75-hp., 1200 r. p. m., 2300-volt wound motors on the main machine drive.



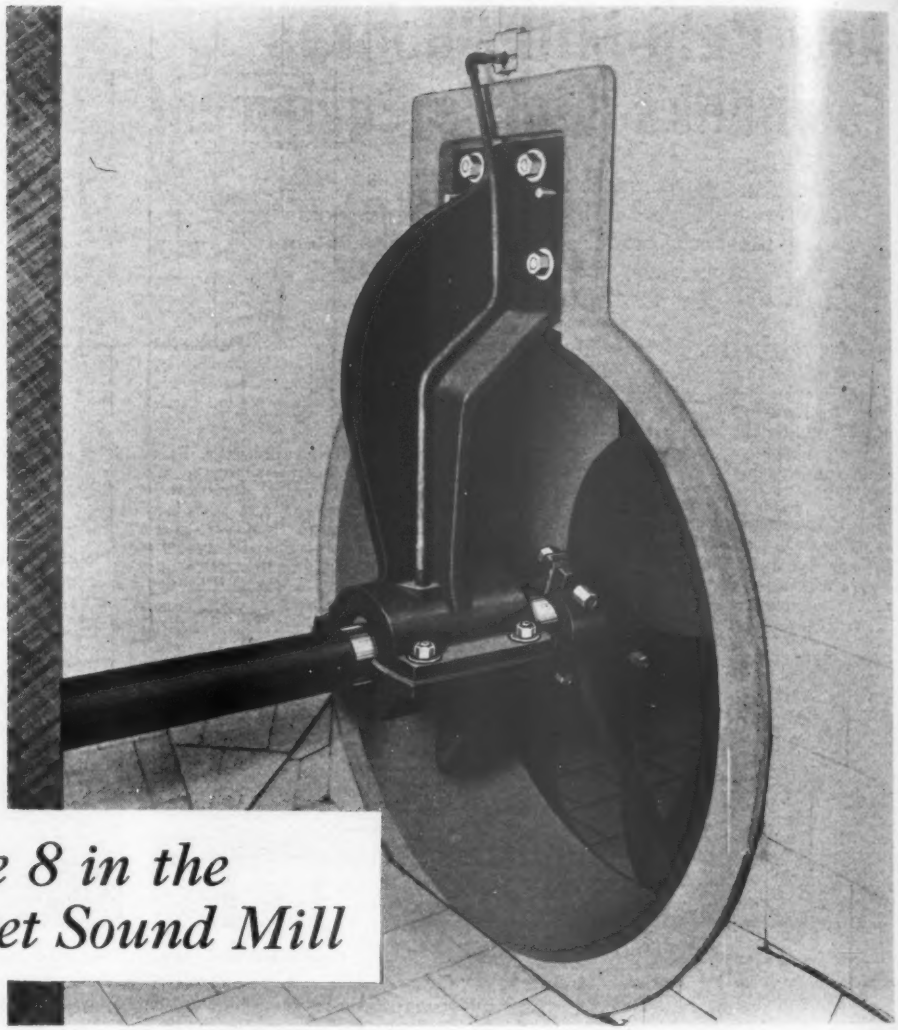
Two F-M type H, 150-hp., 900 r.p.m., 2300-volt motors driving hogs (to break up waste refuse into fuel for steam plant).



Four of sixteen F-M type QS 15-hp., 1800 r.p.m. motors driving propeller type fans in pulp drying machines.

Two Fairbanks scales installed in roll conveyor for weighing finished pulp just prior to baling for shipment.

Two of a number of Fairbanks-Morse splash-proof ball-bearing motors driving flat screens.



There are 8 in the New Puget Sound Mill

Proof that NOBLE & WOOD PROPELLERS are doing a thorough, low cost job of stock blending, are the EIGHT units installed in the new unbleached sulphite pulp mill of the PUGET SOUND PULP & TIMBER COMPANY at Bellingham, Washington.

These 8 units, four single and two duplex, provide uniform circulation in the three white tile lined stock chests. To prevent contamination of the pulp through rust, the propellers are rubber covered and the journals are of stainless steel.

Over 300 NOBLE & WOOD PROPELLER UNITS are operating on many different agitation applications in mills making every type of pulp and paper. One mill alone has 21 units. N & W Propeller Units can be applied to all sizes and shapes of existing chests, horizontal or vertical.

Let us show you how you can save money and improve quality through better blending by the installation of NOBLE & WOOD PROPELLERS in YOUR MILL.

The NOBLE & WOOD MACHINE CO.

HOOSICK FALLS, N. Y.

KENNETH B. HALL, Pacific Coast Representative
219 Pittock Block, Portland, Ore.

Rayonier Releases First Annual Report

Taxes of $1,060,000 were equal to a third of the year's net profit of $3,124,703 or equivalent to $1.10 per common share, or 28% of the total wages and salaries paid employees — Improvements to four Washington State plants totaled $1,373,000 during fiscal year

• Rayonier Incorporated, largest producer of dissolving pulps, on July 11th released its first annual report covering the fiscal year ending April 30th, 1938. The report embraces the combined operations of the predecessor companies for the first six months of the fiscal year and of Rayonier Incorporated for the last six months. The predecessor companies, Rainier Pulp & Paper Company, Olympic Forest Products Company and Grays Harbor Pulp & Paper Company, were merged into the one company, Rayonier Incorporated, on November 2nd, 1937.

"Net profits for the fiscal year," quoting the report, "after all charges and taxes paid and reserved for, amounted to $3,124,703.14, equal to 2.5 times a full year's dividend requirement of the presently outstanding $2 cumulative preferred stock and, after deducting the amount of this requirement, equal to $1.94 per share of common stock. Net earnings of $3,124,703.14 for the year compares with the combined net earnings of predecessor companies of $2,243,320.49 for the year ended April 30th, 1937. Regular quarterly dividends have been paid on the $2 cumulative preferred stock but dividends on the common stock have been omitted since payment of the dividend of fifty cents per share on January 1, 1938.

"Although the business outlook at the beginning of the period was very favorable, a severe depression occurred during the course of the year in general business which, however, has affected the company principally since the beginning of the current calendar year. The first half of 1937, which included the early part of the fiscal year period, was characterized by forward buying to such an extent that an apparent shortage existed in production of both dissolving pulp and ordinary grades of paper pulp. With the continued expansion of the rayon industry, it appeared that this shortage would become acute. As a result of the rapid decline in business which developed in the latter part of 1937, forward buying was discontinued and covering of current requirements was deferred while accumulated inventories were being consumed. As far as the business of the company was concerned, however, demand continued at practically capacity operations until the end of the calendar year 1937. Although the company has contracts with its customers for the full output of its mills, it did not seem prudent to attempt to force delivery of tonnage in excess of customers' requirements, with the result that, since the first of this calendar year, operations have been successively reduced to substantially lower rates.

"Sales for the fiscal year, however, increased 32 per cent in dollars and 22 per cent in tonnage over the combined sales of the predecessor companies for the previous fiscal year and, as in the case of net profits, were the highest in the history of the business. Income from operations increased relatively more than sales, owing to the advantages accruing from the greater volume of production in the calendar year 1937 and the consequent more economical use of facilities, as well as from a higher price for the products of the company. The benefits so derived were shared with employees in the form of wage increases which were made effective June 1, 1937.

• "In response to demands of customers of the company, in the spring of 1937, for increased supplies of dissolving pulp, which they expected would be required by continued growth of the rayon industry, construction was commenced of a new mill at Fernandina, Florida. This was deemed necessary in order to supply the requirements of its customers and to maintain the company's position of leadership in the industry. This mill, which will have and estimated annual capacity in excess of 64,000 tons of dissolving pulp and, with appurtenant properties including timberlands, will represent an investment of approximately $8,300,000, is designed to use Southern pine wood by a process developed in the research laboratory of the company. Exhaustive tests made by the research department presage production of a quality of pulp at least equal to the best now being supplied to the rayon industry. In view of the change in business conditions, construction of the mill will be completed later than originally planned.

Sold 226,325 Tons of Pulp

Continuing to quote from the statement of President Edward M. Mills in the annual report, "Sales of the company for the last fiscal year were distributed by products as follows: dissolving pulp, 202,805 tons; ordinary grades of pulp, 23,520 tons; sulphite printing and writing papers, 14,663 tons. Sales of dissolving pulps were distributed approximately as follows: United States, 70,688 tons; Japan, 97,847 tons; European countries, 33,170 tons; South America, 1,100 tons.

"Because of the importance to the company of sales made in Japan and the uncertainties surrounding this phase of the business, some comment is desirable. The reported usage of dissolving pulp in Japan from all sources in the calendar year 1937 was approximately 300,000 tons, and pulp inventories on hand at the year end were reported as approximately 150,000 tons. In order to conserve foreign exchange, the Japanese Government has required a pooling of pulp inventories by the various Japanese rayon producers and a reduction of inventories to a maximum of sixty days' requirements. In addition, importers of pulp must obtain import and exchange permits from the Japanese Government. In pursuance of this policy, import and exchange permits issued in 1938, prior to April 30th, covered only the carry-over tonnage deliverable under prior contracts. Import permits covering part of the 1938 contract tonnage have been announced but the exchange required thereunder has not yet been provided, and it is not yet definitely known when shipments can be resumed. The rayon industry occupies an important position in Japanese economy as it not only creates products for export but provides a means to reduce importations of other more costly textile materials. The company is well established as a supplier of dissolving pulp to the rayon industry in Japan and hopes to be able to ship a substantial tonnage to Japan. It is impossible, however, to forecast the exigencies of military undertakings and exchange controls.

"The rayon industry in the United States and Europe has been adversely affected by general business conditions. As shown by trade statistics accompanying this report, world production of rayon and staple fiber heretofore, for many years, has shown an annual increase in spite of previous periods of depression, and world production reported for the first quarter of 1938 exceeds one-fourth of the reported production for the year 1937 . . . . . .

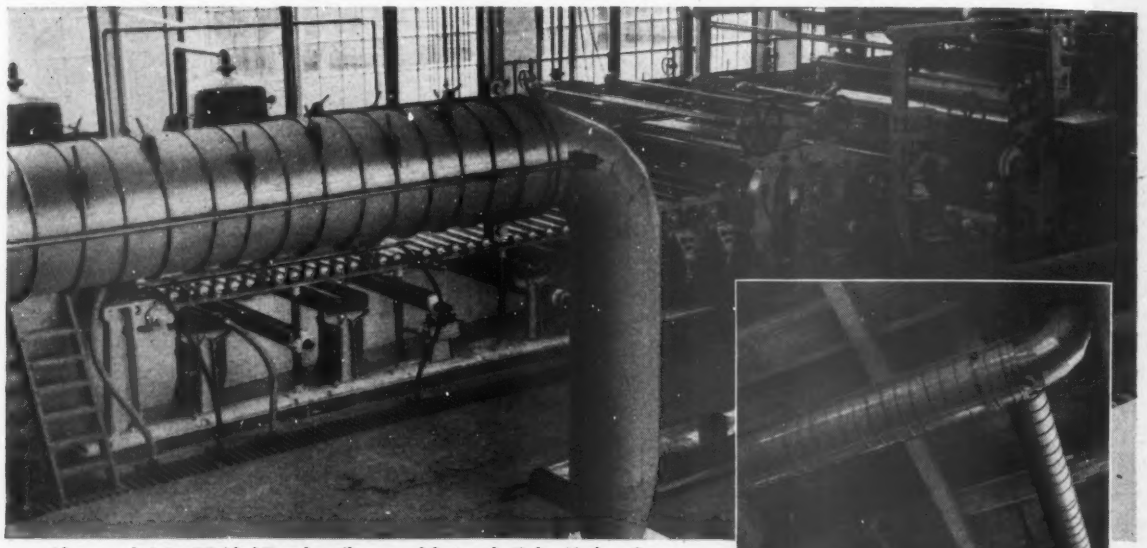
• "Since taxation of business is widely discussed today, the stockholders may wish to know the extent of the tax burden borne by their company. In the last fiscal year taxes paid or accrued to federal, state and local governments amounted to approximately $1,060,000, which is equivalent to approximately $1.10 per share of common stock. Taxes as above shown are equivalent to more than 28 per cent of the total salaries and wages paid to employees during this period. In addition the unmeasured amount of taxes appears in the cost of all materials purchased by the company.

Expects Improvement

"The management of the company regards the future with optimism, notwithstanding present unfavorable business conditions. It seems likely that further expansion in the production of rayon,

Welded Fittings of Everdur

For Stock and White Water Lines



Above and right: Welded Everdur elbows and fittings built by Alaskan Copper Works, Seattle, Washington, for Puget Sound Pulp and Timber Company.

LARGE diameter elbows and fittings, made of welded Everdur sheets, were used for the stock and white water wood-stave lines in the new sulphite pulp mill of the Puget Sound Pulp and Timber Company at Bellingham. And, because Everdur resists the tendency to "slime up", resistance to flow at the elbows is reduced, and stock can be sluiced through at higher velocities. Everdur rod, too, was used for banding at the discharge end of the ten-foot diameter wood-stave stacks to resist the attack of corrosive fumes.

Everdur is naturally adapted for use in many corrosive applications in and around pulp and paper mills, such as save-all pans, troughs, machine vats, head boxes, storage tanks, partitions, filters, seamless tubes, welded pipe, screws and bolts, and electrical conduit.

This high-strength copper-silicon-manganese alloy is moderate in price. It is available in all commercial forms—has excellent working qualities—can be formed, welded and machined by all usual shop and erecting methods, making possible substantial savings in weight for built-up equipment.

Service Engineers of The American Brass Company will be glad to confer with Engineers in the pulp and paper industry regarding the use of Anaconda Metals. 38294

"Everdur" is a trade-mark of The American Brass Company, registered in the U. S. Pat. Off.

Above: Everdur-banded discharge end of 10-foot diameter stacks of digester building, erected by National Tank and Pipe Company.

ANACONDA *Anaconda Copper & Brass*

THE AMERICAN BRASS COMPANY, General Offices: Waterbury, Connecticut

In Canada: Anaconda American Brass Ltd., New Toronto, Ont. • Subsidiary of Anaconda Copper Mining Company

rayon staple fiber and Cellophane will occur and that new uses for cellulose products will be developed. The company is continuously engaged in research work along a broad front, as a result of which it hopes to continue to improve its products and to make contributions to the science of the industry."

The net earnings during the fiscal year ending April 30th of $3,124,703 is equal to $1.97 per share on the 963,872 common shares outstanding after preferred dividends. Comparable earnings for the predecessor companies for the year ending April 30th, 1937 were $2,243,320.

Net sales, after freight marine insurance and discounts, totaled $17,496,025.07 against combined net sales for the predecessor companies of $13,278,021.02 for the fiscal year ending April 30th, 1937.

Current assets on April 30th were $5,330,324.56 against current liabilities of $4,294,405.79. Depreciation in the past fiscal year was $1,056,182 against $861,989 total of the predecessor companies in the preceding fiscal year.

● During the past fiscal year the company expended on plants, equipment and properties a total of $7,378,791.20. Of this total $5,582,915.95 was invested in the Fernandina Division; $616,258.97 in the Shelton and Tacoma Divisions; $422,029.51 in the Port Angeles Division; and, $746,466.23 in the Grays Harbor Division. Of the total $865,653.84 was expended for timberlands for the Fernandina Division properties which are held in the name of a wholly owned subsidiary, Georgia Timber Company which was organized this last Spring; and $411,250.58 for timberlands under the Grays Harbor Division. The remainder of the $7,378,791.20 or $6,101,886.78 was expended on the improvement of the several plants including the purchase of equipment.

Plants Kept Modern

The policy of Rayonier Incorporated to maintain its plants in the finest condition for economically producing quality dissolving pulps, is clearly shown by the expenditure of $1,375,000 during the fiscal year ending April 30th on the plants and equipment in its four producing mills in the State of Washington.

In his report, President Edward M. Mills stated that the major part of the cost of the company's investments during the fiscal year had been financed by long term bank loans but that longer term financing is contemplated and will be arranged when conditions are advantageous.

The twenty page attractive report is bound in Cellophane, includes photographs of the company's five dissolving pulp mills, earnings and production statistics back to and including 1929, photographs of the large research laboratory at Shelton, Washington, statistics on world rayon and staple fiber production and a short article on the development of the rayon and staple fiber industry.

Rayon and other CHEMICAL USES OF WOOD PULP

Japan Forbids Domestic Use of Cotton

● Hope for the early resumption of rayon pulp imports by Japan rose in the United States with the recent announcement by the Japanese Ministry of Commerce that no further manufacture of cotton goods for domestic consumption would be permitted. When present stocks of cotton merchandise are exhausted the Japanese people will use staple fiber and rayon textiles.

Limited imports of cotton will be permitted for manufacture into textiles for export.

The purpose of the edict is said to be to reduce foreign exchange requirements. It is to Japan's advantage to concentrate upon rayon and staple fiber production instead of cotton for raw cotton represents 60 to 80 per cent of the cost of finished cotton textiles, while wood pulp represents but 35 to 40 per cent of the cost of finished filament rayon or staple fiber textiles.

Another step taken recently by the Japanese Government is of vital interest to the dissolving pulp industry. Imports of wool during the fiscal year beginning July 1st, 1938 are to be cut in half and staple fiber substituted. The U. S. Department of Commerce reported in July 9th that, "In order to maintain the present operating schedule of 40 per cent of capacity, the Woolen Goods Manufacturing Association (Japan) has decided that it is necessary to increase the rate of staple fiber mixing to 60 per cent, thus raising the monthly consumption of staple fiber in the woolen industry from the present 2,000,000 pounds to 3,000,000 pounds. Woolen consumption is expected to drop to 2,000,000 pounds per month."

Another Department of Commerce report states, "Reports indicate that the Japanese Government has tentatively decided to cut imports of raw wool from Australia almost in half, or to 400,000 bales, and from South Africa and South America to 200,000 bales. Of the total 600,000 bales to be imported during the fiscal year, 200,000 bales will be used for the manufacture of woolen goods for the export trade, 200,000 for military use, and 200,000 for home consumption.

Rayon Seriously Affecting Cotton

● The cotton industry is worried over the gain in rayon production and consumption but sees no means for stopping rayon's development. On April 30, 1938, Dr. Claudius T. Murchison, president of the Cotton Textile Industry, Incorporated, spoke before the annual convention of the American Cotton Manufacturers' Association in Augusta, Georgia. Excerpts from his talk were published in the Rayon Textile Monthly for May and are reprinted herewith because of their interest to the pulp industry.

. . . "The first stages of this apparent tragedy (Dr. Murchison refers to the decline in cotton production and consumption) occurred in the early 1920s when Germany and Italy were forced by exchange difficulties to forego their customary purchases of cotton and concentrate upon the development of synthetic fibers as an essential part of their programs of national self-sufficiency. Great success has attended their efforts and no one supposes that cotton will regain its former importance in those two countries."

"Japan, likewise, has been eminently successful in development of synthetic fibers and finds it to her advantage at the present time to require a 30% admixture of rayon in all cotton goods produced for home consumption. Japanese authorities have lately declared that it is the intention of the Japanese governmen to make this policy a permanent one." . . .

". . . Lest we are being lulled into a false sense of security, it is worth pointing out that what is happening in these other countries is in effect happening in the United States. The only difference is one of motive."

". . . I am not sure that the prospect is alarming, but the result will be momentous unless the means of counteraction can be discovered. If the downward trend cannot be checked, it will, nevertheless, be sufficiently slow to permit the industry to make the necessary adjustment to its new requirement. As a textile industry we will continue undiminished in structure, but we may not be to so great an extent a cotton textile industry."

"In 1927 rayon yarn production in the United States was seventy-five and one-half million pounds. By 1931, which was a depression year, this output was doubled. By 1935 the output was 262,000,000 pounds and in 1937 it reached the comparatively high volume of 332,336,000 pounds or more than four times the output of 1927. Incidentally, during this same period the output of combed cotton yarn declined from 160,000,000 pounds to 122,000,000 pounds. The Textile Economics Bureau estimate that in 1937 230,000,000 pounds

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extends congratulations to THE PUGET SOUND PULP AND TIMBER COMPANY for their new modern sulphite mill at Bellingham, Washington.

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A total of 53 Systems installed is impressive, but the fact that very nearly one-third of all the business of Chemipulp Process Inc. consists of repeat orders is, we believe, significant.

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of rayon were manufactured into women's wear, as compared with 925,000,000 pounds of cotton used for the same purpose. This estimate gives to rayon an importance of 25% as compared to cotton in supplying women's apparel. Although this ratio of one to four is in itself impressive, a far more important fact is the speed with which it has been acomplished. Moreover, recent technical advances in rayon production and treatment have been revolutionary and show no signs of faltering. The continued upward trend of that article seems assured . . ."

". . . If we are to retain our present stature as a cotton manufacturing industry, it is important for us to know why our competitors are continuing to expand."

"No industry ever began its career with a viler product and with a more discouraging outlook than did the rayon industry. In order to succeed it was necessary to employ great scientific skill, expensive laboratories and high-cost capital equipment. These requirements had the effect of limiting the number of enterprises in this field to a comparatively small group. These limiting factors became increasingly important as the industry progressed, making it more and more difficult for new units to be formed with the final result that rayon yarn producers were small in number but large in individual size."

"This type of industry structure not only made possible large-scale research effort and the economies of mass production; it also permitted what might be termed a merchandising sponsorship of the goods produced all the wav from the primary processor to the final consumer. The rayon producers not only expend great amounts in consumer advertising but also cooperate with merchandisers in a continuing analysis of consumer demand. Although, as is the case in the cotton goods industry, most of the weaving, converting, finishing and cutting are done by separate and independent groups, there is a manifest tendency to preserve the identity of the fabric all along the road and where such identification of origin is not possible to cooperate in the recognition of commonly accepted standards verified by the use of appropriate labels. When this careful nurturing of merchandising methods and standards is combined with the highest type of scientific research unremittingly employed, we have the secret of the rayon industry's success . . ."

". . . It is a significant fact that rayon staple can be a satisfactory raw material for the spinning mills. It has been amply demonstrated that rayon yarn can be woven satisfactorily on cotton looms. It is also true that cotton converters are learning the art of converting rayon fabrics and many of them already have rayon departments in their organizations. Finishers are likewise very adaptable. Garment manufacturers, upholsterers and other secondary processors certainly have no preferences and will use whatever fabric protects their volume. The same may be said of wholesale distributors and retail merchants. Looking all the way from the spinner of the raw material to the retailer of the finished product we find no economic motive strong enough to resist the gradual inclusion within the industry of this new competitive material."

Japanese Staple Fiber Production Sets Record

● Production of staple fiber in Japan set a new record in April with a total of 33,000,000 pounds, which was an increase of 24 per cent over the production during March of this year.

Finnish Mill to Make Pulp and Rayon Yarn

● When the firm of Kuitu O. Y. completes its mill it will be possible to carry out the whole process of rayon manufacture beginning with the original wood and ending with the finished rayon fabric, according to the American consul in Helsingfors.

Celanese Planning Expansion

● Reports indicate that the Celanese Corporation is arranging necessary plans for an expansion program at its Amcelle, Maryland, mill which will include new buildings and additional equipment in the chemical division as well as for staple fiber manufacture.

American Viscose Installing New Machinery

● The American Viscose Corporation is reported to be installing machinery in its new plant at Front Royal, Virginia, and production should begin by the first of 1939.

B. C. Pulp Shipping From Stock

● Although British Columbia Pulp & Paper Company is continuing to make shipments from its accumulated stock of bleached sulphite pulp, the company's two mills at Port Alice and Woodfibre are still shut down and President Lawrence Killam sees no immediate prospect of reopening.

"Market conditions are not good enough to justify operation at present," said Mr. Killam. "There is no change in the situation since we ordered the shutdown."

Japan has complicated the pulp export situation for many pulp mills and especially for those owned by B. C. Pulp & Paper Comany, which had regarded the Orient as one of its principal markets.

One of the chief factors in expansion of the rayon and bleached sulphite pulp industry has been the growth of the rayon and staple fiber industry in Japan. Japan has been largely dependent on imports for its pulp supply, but is now endeavoring to develop pulpwood resources of its own to meet the greater part of the tremendous demand.

However, Japan's preoccupation with war in China has made it impossible for Japanese pulp importers to obtain credits for importing pulp except in extremely limited quantity. Unfavorable exchange has also been an adverse factor in the maintenance of trans-Pacific movement of pulp.

Until such time as Japan returns to the pulp market, manufacturers who had been catering to that trade will be in a quandry. In the last two years Japan has been importing 230,000 tons of rayon pulp annually, a large proportion of it from Pacific Northwest mills. If Japan does not return to the market, the pulp makers will have to find other outlets.

The management of B. C. Pulp & Paper decided that until conditions became more stabilized the logical course lay in closing down.

Half of Swedish Bleached Used in Rayon

● Twenty-three per cent of the world's production of sulphite pulp is absorbed by the rayon industry for the manufacture of artificial silk and wool, according to a statement recently made at the National Swedish Forest Congress held in Stockholm. At the same time it was stated that no less than 50 per cent of Sweden's output of bleached sulphite pulp is absorbed in this industry, the high percentage in the case of Sweden being due to the particular suitability of Swedish pulp for rayon production. The rayon industry, it also said, was a typical instance of what science and industry together can produce. This industry originated in the laboratory and is now world-wide in extent, employing nearly 2,000,000 people. Since 1920 the development of the rayon industry has been enormous. Production between that year and 1930 increased from 15,000 to 200,000 tons. During 1937 rayon production is estimated at around 750,000 tons.—Office of the American Commercial Attache, Stockholm.

Powell River On Half Time

● Powell River Company is continuing on a sixteen-day-per-month operating basis, with no immediate prospect of increasing production, although executives state that the general market outlook has improved considerably during the past few weeks, and that a gradual pickup is expected during the balance of the year.

The Powell River mill will be shut down completely for another two weeks' period during the latter part of July and the first of August, and during that time advantage will be taken of the opportunity of making some alterations in the sawmill.

● A Filer & Stowell band saw edger of the new type will be installed to replace the standard type edger, which operates on a circular saw basis. Vice-President R. Bell-Irving says that it is expected that the new installation will effect considerable economy in utilization of pulpwood as it will reduce the amount of kerf.

● Owing to decline of the pulp market, Powell River Company has closed down operation of its Kamyr machine which was installed a year ago to take advantage of the swift uptrend in sulphite pulp markets. When other B. C. pulp mills were converted for the exclusive production of rayon and bleached sulphite for high grade paper, the time seemed opportune for Powell River to step into the unbleached trade; but the boom was of comparatively brief duration. However, it is expected that when markets become normal again, the Kamyr unit will become a profitable feature of the company's production.

Hyde Visits Southwest

● James D. Hyde, chemist for the Western Waxed Paper Company at the Camas, Washington plant, returned recently from a business trip south which took him to Southern California, Arizona and New Mexico.

IMPCO at Bellingham

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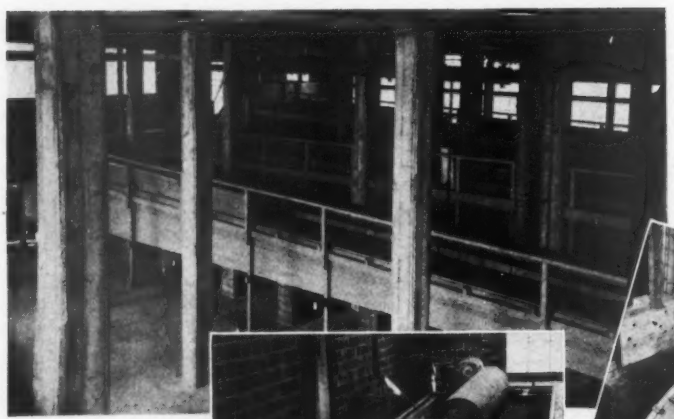
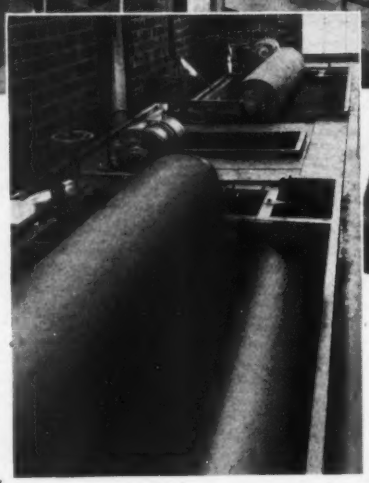
KNOTTERS
DECKERS
WASHER



TWENTY IMPCO bronze Vat FLAT SCREENS equipped with Dunbar silent drives.



TWO IMPCO DECKERS, 42 by 120 inches, bronze cylinder moulds and wires. Motor driven couch rolls synchronized with cylinder motor eliminating wire wear.

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B. C. Industry Uses 8% of Timber

Between 7 and 8 per cent of British Columbia's timber cut goes to pulp and paper mills, according to a survey recently completed by Chief Forester E. C. Manning.

However, the value of pulp and paper products is more than 22 per cent of the total value of forest production over a ten year period. In other words, use of the wood for pulping purposes yields about three times as much revenue as other industries, and this is a fact now being emphasized by the British Columbia government in encouraging development of pulp and paper enterprises rather than lumbering and logging.

"The prospects are that pulp and paper will assume an even greater place in the economic life of the province in a few years," states Mr. Manning in announcing his findings.

Referring to progress of the pulp and paper industries last year, Mr. Manning points out that the "extraordinary prospects" were not fully realized as a result of unexpected market collapse in several countries, notably the Far Eeast. He recalls that in 1936 Canadian production of pulp and paper increased 15.9 per cent, compared with a 1 per cent increase in the United States and 10 per cent gain in Newfoundland. British Columbia's advance was a little more than 8 per cent, most of which was for newsprint.

Mr. Manning reports that orders were so plentiful during the early part of last year that quotas were resorted to in some cases. Plant improvements were undertaken by the various mills to a total of nearly $3,000,000. Labor shared in the recovery by wage increases of as much as 27 per cent.

Here are figures for paper production in British Columbia in recent years, in short tons:

Product.	1931	1932	1933	1934	1935	1936	1937
Newsprint	217,562	205,050	237,107	267,406	262,123	276,710	238,142
Other papers	17,709	24,051	23,492	26,777	33,287	41,443	53,026

Ten years average—1927-38, 238,142 tons of newsprint; 27,568 tons of other paper.

In addition to the 301,550 tons of pulp manufactured into paper in British Columbia in 1937, 87,000 tons were shipped out of the province during the year.

Southern News Mill To Start Construction

● Press dispatches state that the proposed newsprint mill to use Southern pine has been financed through the efforts of Southern newspaper publishers and construction will start during this month at Lufkin, Texas.

The first unit (eventually four are expected to be built) will have an annual capacity of 50,000 tons. George F. Hardy, consulting engineer of New York, is reported as in charge of design and construction of the mill. The plant is scheduled to be in operation within a year. Southern publishers are said to have contracted for 860,000 tons of newsprint to be produced by the new plant.

Stewart Elected Vice-President of C. C. Moore & Co.

● John G. Stewart, for the past year assistant to the president of C. C. Moore & Company, Incorporated, Engineers, was elected vice-president on June 27th. Mr. Stewart is well known in the pulp and paper industry having been connected with the company's Seattle office for a number of years, moving to San Francisco headquarters a year ago. The company specializes in the design and construction of steam generating plants and has participated in development of the pulp and paper industry's modern power plants.

Larsen Makes Coast Trip

● L. K. Larsen, sales manager of the Pulp Division Weyerhaeuser Timber Company with headquarters in New York City, arrived in Longview July 12th for a visit at the company's bleached sulphite mill there. Mr. Larsen later went to Everett where Weyerhaeuser operates an unbleached sulphite pulp mill.

Cameron Issues New Catalog

● The Cameron Machine Company of Brooklyn, New York, has issued a new twenty-four page catalog of Camachine Mill Type Winders.

In addition Cameron offers bulletins on four machines in its line; Camachine 14 for paper or board mill machines, finishing rooms and converting plants; Camachine 18, for producing bag rolls, shipping rolls, counter rolls and board rolls; Camachine 19, for faster and better production of news, book and kraft rolls; Camachine 20, produces rolls of uniform denisty with maximum weight and lineal length per given diameter; and, a bulletin covering the Cameron constant web tension device for the production of uniform rolls.

Powell River Elects Two New Directors

● George F. Laing, Vancouver banker, and J. G. Sample, of Lake Forest, Mich., were elected vice-presidents of Powell River Company at the annual meeting held in Vancouver this month.

Mr. Laing retired last year as manager of the Bank of Montreal. Mr. Sample is a large holder of stock in the Powell River Company and other Brooks-Scanlon lumber and pulp enterprises.

S. D. Brooks, president of Powell River Company, presided at the annual meeting.

In addition to Mr. Laing and Mr. Sample, vice-presidents of the company include Edward Brooks, Harold S. Foley, executive vice-president; C. A. Brooks; R. Bell-Irving.

Directors include: F. T. Griffith, R. H. Scanlon, Joseph Falconer, comptroller; J. S. Foley; J. H. Lawson, secretary.

Executives and head officials include D. A. Evans, resident manager; H. K. Brooks, treasurer; J. M. Graham, assistant secretary; E. C. Lee, assistant to the president; J. A. Kyles, mill secretary; J. C. Hill, accountant; C. H. Carruthers, general superintendent; I. H. Andrews, control superintendent; Ned Beaton, resident engineer; and W. A. McLeod, purchasing agent.

Experimenting With Sawdust Tile

● The porch floor of the research laboratory building of the pulp division, Weyerhaeuser Timber Co., at Longview has been paved with tiles made in the laboratory from sawdust by various methods, a development carried out under direction of Raymond S. Hatch, research director.

The tiles were put in about the middle of June, and to date have shown no wear, although exposed to weather and to considerable abrasion. The test is being made to determine their qualities for resisting wear and exposure.

The words "Research Laboratory" are moulded in the center tiles in metal, illustrating some of the decorative as well as utilitarian possibilities of the material.

Low Water in the Willamette

● The usual low summer water in the Willamette River has shut down the water-power grinders of the Hawley Pulp & Paper Co. at Oregon City, and as this is written, the Crown Willamette mill at West Linn was shutting down line after line of grinders which employ the water turbines.

The next four months will be slack season in the Willamette River grinding rooms. Sufficient water for full-scale operation will be available again between Nov. 15 and Dec. 1.

Horseshoe Club Holds Annual Picnic

● The "Horseshoe Club" of the Camas mill of the Crown Willamette Paper Co., division of Crown Zellerbach Corporation, held their annual picnic on June 3 at Dead Lake. All of the usual picnic events were featured—horseshoes, baseball and the like, with plenty to eat. J. E. Hanny, mill manager, presided.

The "Horseshoe Club" is an organization of mill foreman and the executives which has been the source of much pleasure and goodwill among its members. The first "chapter" was organized some years ago at the West Linn mill, the second being formed when Mr. Hanny went from there to Camas.

The West Linn Degree Team, headed by mill manager Clarence Bruner, was present at the Camas celebration and put on the initiation ceremonies for new members in the traditional style.

U. S. Pulp Exports In April

● Exports of wood pulp from this country during April amounted to 15,927 short tons valued at $1,068,578. Wood pulp exports in January of this year were 11,317 tons valued at $784,580; in February 19,433 tons valued at $1,470,038; and, in March 11,994 tons of a value of $821,400.

The April pulp exports consisted of 9,344 tons of bleached sulphite valued at $759,293; 5,375 tons of unbleached sulphite valued at $249,991; soda pulp amounted to 51 tons valued at $3,318; and, miscellaneous shipments totaled 1,157 tons valued at $65,976.

Dr. Harris Appointed Advisor on Wood Study

Dr. J. Allen Harris, one of British Columbia's outstanding research chemists, has been appointed as advisor on wood utilization to the provincial government. His appointment was announced by the new minister of trade industry, Hon. W. J. Asselstine.

Mr. Asselstine said that the primary problem of British Columbia's forest industries was to find a means of utilizing waste and by-products, and he called on the pulp and paper and lumber industries to co-operate with Dr. Harris, whose job would be to find avenues for a more complete use of timber products.

Mr. Asselstine recently made visits of inspection to the Powell River Company's newsprint mill and to the new lumber mill of Nootka Wood Products at Port Tasis, west coast of Vancouver Island, which may ultimately be the base of a new pulp industry. He wished to familiarize himself with the problems of the pulp industry, he said.

Dr. Harris is a well known physical scientist who became famous some years ago as the discoverer of a new element, No. 61, or illinium, while he was doing research work at the University of Illinois, where he had gone for post-graduate study.

Although Dr. Harris is best known for his research into metallic elements, he has made a considerable reputation for his work in connection with the profitable utilization of fruit by-products. A resident of the Okanagan apple growing district for some years, Dr. Harris saw a serious economic loss in wastage from the packers' plants and set to work to devise various means of turning this material into account. He also carried out a good many experiments in other agricultural products, coal and wood.

"Because the forests provide British Columbia with its greatest industrial payroll, it is only natural that we should concentrate on wood utilization first," said Dr. Harris in outlining his aims in his new field of service. "The time is coming when the great Douglas fir forests of British Columbia will become a thing of the past; when the sawmill industry will undergo a transition into something very different from what it is today.

DR. J. ALLEN HARRIS
B. C. Wood Utilizatiton

"In the new forest era facing the Pacific coast there will be no room for waste. We will find a profitable use for everything in the tree. I believe that the pulp and paper industries have a tremendous future in this part of the world, and they are entitled to success if for no other reason than that they eliminate much of the waste that is inevitable in other forest industries.

"However, the pulp and paper industries do not represent the ultimate development. I believe that the British Columbia forests, already producing rayon pulp in large volume, will eventually be the source of other cellulose products. I believe that a use will be discovered for the use of the waste liquors of the pulp mills in the manufacture of plastics and similar substances. The field is almost unlimited; it is a tremendous opportunity.

"It is fortunate for British Columbia that this work is being started now, while the forests are still extensive, rather than wait until depletion of certain areas is already threatened."

Dr. Harris, who was formerly a member of the factulty of the University of British Columbia and is still in his early thirties, was a member of the provincial legislature for two years. He will work in close association with the provincial forest products laboratory, Vancouver.

● Following a trip to Madison, Wis., where he will make a study at first hand of the methods employed in the United States forest products laboratory in developing new uses for wood, Dr. Harris will probably visit some of the eastern Canadian laboratories. Then he will return to the coast to assemble his data and prepare a series of reports and recommendations for the provincial government.

Dr. Harris will also obtain data on the success of Scandinavian countries in using small and inferior trees in pulping processes which now are more important there than lumbering.

"We will look into the marketing side of the industry as well as the chemical," said Hon. W. J. Asselstine, minister of trade and commerce in announcing Dr. Harris' appointment. "Conditions in the pulp and paper industry today are ample evidence of the need for more intensive organization of marketing."

The British Columbia government is impressed with the tremendous development of the pulp industry in the Northwest states, particularly in Washington. It feels that British Columbia has not begun to realize on the possibilities of its own pulpwood resources.

Already the province is extensively utilizing wood not suitable for lumber manufacture. Of a forest production last year of $80,872,000, a total of $17,214,000 comprised revenue from pulp and paper; $6,875,000 from shingles; $2,122,000 from boxes; $2,346,000 from piles, poles and mine props; $1,459,000 from cordwood, fence posts and lagging; $560,000 from ties; $1,400,000 from laths and other miscellaneous products.

Altogether, lumber, made from all species, represented only half the total forest crop.

Federal experts from the Canadian forest products laboratories in Montreal and Ottawa are expected to come here this summer to assist in the survey being undertaken by Dr. Harris.

Swedish Production of Bleached Sulphite

● Production of bleached sulphite pulp in Sweden, according to preliminary figures, amounted to approximately 400,000 metric tons (440,000 short tons). According to the annual report recently made public, A/B Billerude accounted for nearly 82,000 tons of rayon pulp produced during the year.—Office of the American Commercial Attache, Stockholm.

TAPPI Fall Meeting Scheduled for Green Bay

● The fall meeting of the Technical Association of the Pulp & Paper Industry will be held September 8th to 10th at Green Bay, Wisconsin. Headquarters will be in the Hotel Northland. Early reservations are recommended and should be sent to A. D. Murphy of the Green Bay Association of Commerce.

The American Chemical Society will meet at Milwaukee September 5th to 9th and many TAPPI members will be interested in attending the meetings of the Cellulose Division of the Society which will probably be held prior to the TAPPI meeting.

Arrangements have been made for the exhibition of machinery and supplies at the Northland Hotel during the meeting. R. D. Cords of the Northern Paper Mills in Green Bay, is in charge of the exhibits.

A. B. Hansen, general manager of the Northern Paper Mills is general chairman of the Green Bay meeting. W. J. Servotte, assistant manager of the Bay West Paper Company is assistant general chairman. Vice-chairmen are: W. C. Christensen, chief chemist of the Hoberg Paper Mills, and E. H. Voigtman, chemical engineer of the Kimberly-Clark Corporation.

The program will be arranged by A. B. Hansen and J. M. Conway, president of the Hoberg Paper Mills.

Norman Kelly Sails Puget Sound

● W. Norman Kelly, manager of the Longview mill, Pulp Division of Weyerhaeuser Timber Company, is back after a sailing trip in northern waters. In company with Evan Wood of the Everett mill, he sailed his boat from Everett around Puget Sound and down Hood Canal for a week, indulging in his favorite sport.

Marshall in California

● Wm. "Bill" Marshall, well known member of the staff of the Pacific Coast Supply Co. at Portland, left July 9th for California, where he was to spend several weeks. He will be calling on the trade and mills in San Francisco, Los Angeles and way points.

How Are You Betting?

● Dan Phillips and Carl Fahlstrom were the two survivors in the Longview Fibre Co. spring handicap golf tournament, coming into the final round together. As this is written, the championship had not been played off, and the betting was still running high.

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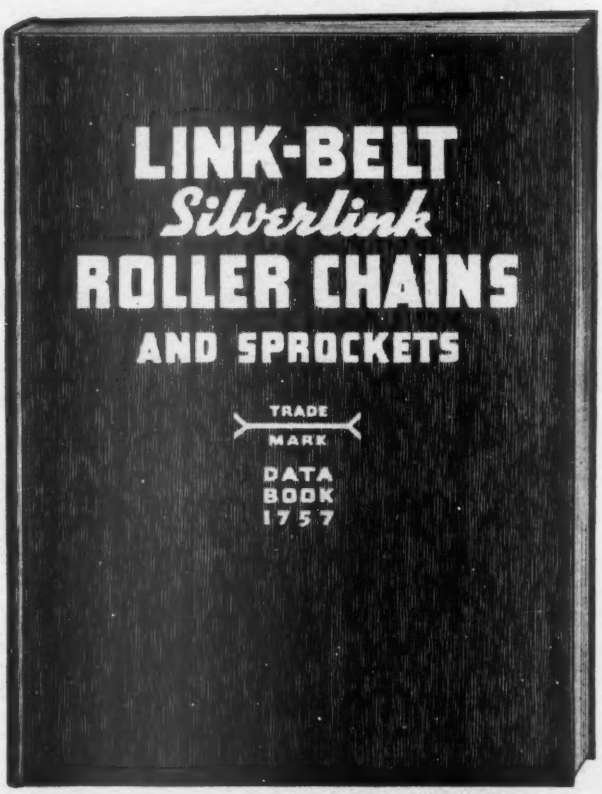

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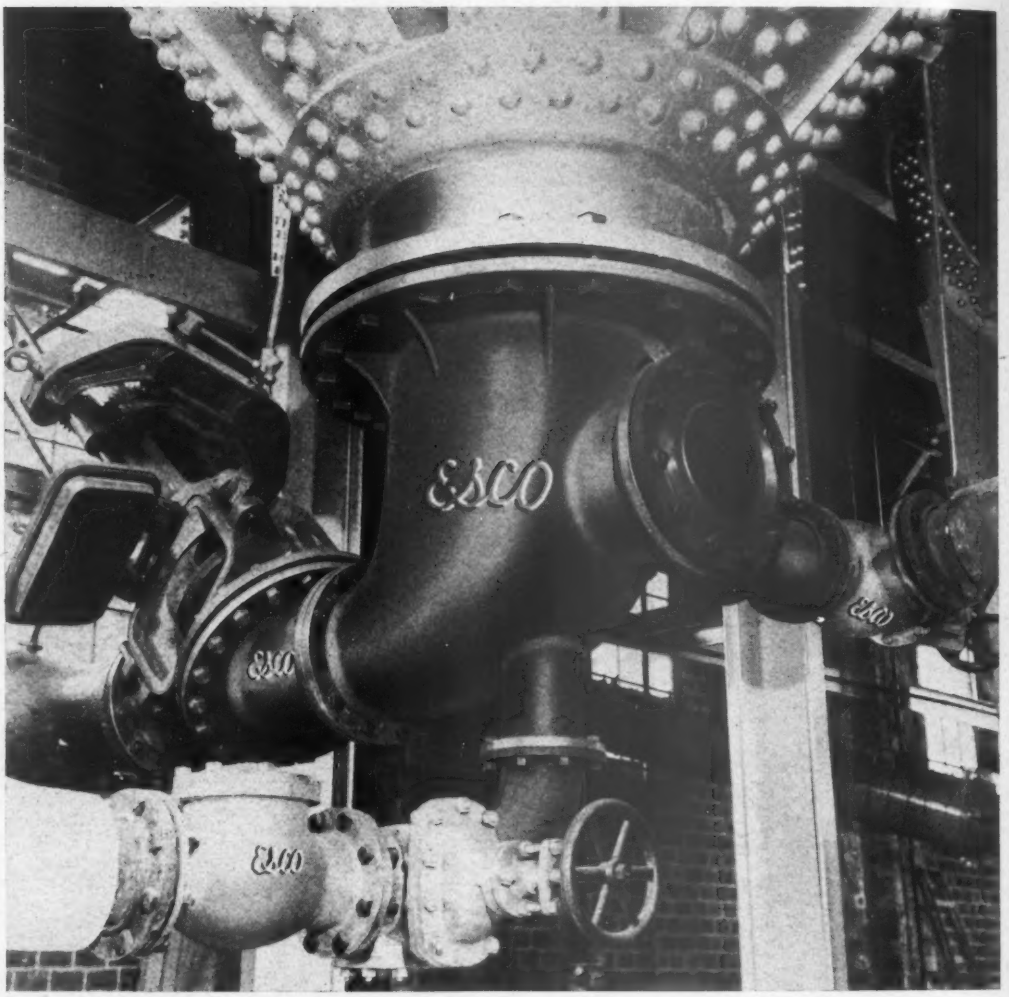

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Swedish Pulp Exports To Britain Increase

• The following article appears in the June 30th issue of the Swedish Wood Pulp Journal:

The situation of the pulp exporters as regards their stocks has no doubt deteriorated considerably in the last couple of weeks, owing to the difficulties of the buyers to accept deliveries according to their contracts. Although no figures are available, many buyers in several of the most important consumers countries are also hampered by fairly large stocks. As regards the situation in the American ports, it is considered that the stocks there have not changed appreciably this last month. On the other hand it must be remembered that in the past months of 1938 America has imported considerably less than in the corresponding period of 1937; in addition, the possibilties of storage in the ports have probably been utilized to the utmost limit. The imports to our next largest market, Great Britain, have—remarkable enough —been larger so far this year than in the corresponding period 1937. As, however, the English paper industry has also experienced a diminution in the supply of orders, we must conclude that the buyers in Great Britain, too, are holding fairly considerable stocks of pulp.

In our latest report we mentioned that several pulp mills have been compelled to reduce their output. In the last couple of weeks even more mills, in Sweden as well as in Norway and Finland, have had to do so. In most cases these reductions have been effected by stopping work altogether. The negotiations in the S. P. S. for a prolongation of the agreement, which expires with 1938, have not yet been concluded. It is thought, however, that a definite decision will probably be come to during the summer months.

• In the latter half of June fairly considerable sales for 1939, especially of sulphate pulp, were made in connection with the conversion of contracts for 1938. As before, there were but few sales, and they were of very insignificant size, that were not in one way or another connected with revisions of earlier agreements.

Swedish Mills Show Good Reports for 1937

• The following company reports appeared in the June 30th number of the Swedish Wood Pulp Journal:

• The Swedish Pulp Company shows a net profit for 1937 of 3,70 mill. kr. compared with 3,22 for 1936. That profit has been arrived at after allowing unchanged amount of 1,50 mill. kr. for depreciation of the Ostrand mill, and an appropriation to the Taxation Fund of 0,52 mill. kr. The Shareholders' Meeting on May 30 resolved to use the amount at its disposal, 4,51 mill. kr., in the following manner: a dividend of 5 per cent (1,50 mill. kr.) was, for the first time since the company was started in 1929, paid to the shareholders, while 1,88 mill. kr. (last year 2,67) were written off shares held, and 1,14 mill. kr (last year 0,82) carried forward to next year's Profit and Loss Account.

• Skonviks A.-B. resolved at the Shareholders' Meeting on the 3rd of this month to increase the number of directors from 4 to 5, and elected Mr. G. Sahlin, Stockholm, a new member of the Board.

The 1937 balance sheet shows a net profit of 1,39 mill. kr., compared with 1,97 mill. kr. in 1936. In accordance with the recommendation of the Board, the dividend was raised from 4 to 5 per cent, which will account for 0,98 mill. kr., 0,30 mill. kr. was carried to the Reserve Fund, and 0,63 mill. kr. to next year's accounts. The total sales have risen to 21 mill. kr., compared with 13,3 mill. kr. in 1936.

The wood production of the Company has grown from 21,400 to 25,800 stds., and the paper production from 32,100 to 35,500 tons. Certain changes were last year made in the cellulose production, and the Company now manufactures practically only bleached sulphite instead of previously only unbleached. The output was 36,000 tons of bleached sulphite, instead of 1,000 last year, and 9,300 tons of unbleached instead of 42,800 last year. The total cellulose production has thus risen from 43,800 to 45,300 tons. Of mechanical pulp, which is mainly used for the Company's own production of newsprint, the output was 52,100 tons, as against 50,700 last year. The electrical power production was 50,02 mill. kwh. as against 48,78 last year.

• Bergvik & Ala Nya A.-B. elected, at the Shareholders' Meeting on May 30, Mr. G. Sahlin, Stockholm, a new member of the Board. The Meeting adopted the recommendation of the Directors to pay a dividend of 15 kr. per share (last year 13 kr.).

Stromnas A.-B. resolved at the Shareholders' Meeting to pay an unchanged dividend of per cent. The number of Directors was increased from 4 to 5. Mr. Ragnar Sundfeldt, Stockholm, being elected to fill the new post.

• Kramfors A.-B. has decided to raise its dividend from 7 to 8 per cent, which will take 1,22 mill. kr.

Holmsunds A.-B. has resolved to increase the dividend from 9 to 10 per cent, which will take 0,60 mill. kr.

Position of Occupational Disease Act

• In an opinion filed June 8, the Supreme Court of the State of Washington upheld the decision of the lower court in the Polson Logging Company case against the Department of Labor and Industries and the Industrial Insurance Department, involving the occupational disease act. This decision declared that the law, chapter 212, Laws of 1937, could not be constitutionally applied to the Polson Logging Co., inasmuch as the Polson Logging Company operations do not produce any occupational diseases as defined by the statute.

It did not, as was first believed, declare the act unconstitutional, and no opinion was expressed on this phase by the court.

When this bill was passed it became an act, or law, but within the bill itself, it was also referred to as an amendment to the Workmen's Compensation Law. Applied as an act, it would require joint contribution of employer and employees. Applied as an amendment, the tax would be on the employer only.

The author of the bill, John Sherman, intended it to require joint contribution, but by the time the bill came through the legislative mill, the reference to amendment was added, and this has since caused confusion and difficulty in administration. Following handing down of the Supreme Court decision, E. Pat Kelly, director of the Department of Labor and Industries, notified employers that the suspension of collection of occupational disease premiums will remain in effect from January 1, 1938, until further notice; and that all claims filed since Jan. 5, 1938, for compensation or medical care will be honored if bona fide and subject to the occupational disease amendment.

The department will pay all claims filed by employees out of the joint fund account until this fund is exhausted, hoping that the legislature can clear this up before the funds have been used up.

As it now stands, no premjums called for by the occupational disease law are being collected, yet the department will continue to pay claims which are filed and found meritorious including claims filed by employees of logging companies other than the Polson Logging Company of Hoquiam.

Japanese Pulp First Quarter Pulp Production and Imports

• Not only is Japan importing less wood pulp, since the war situation developed in the Far East, but is also reducing its domestic production of pulp, according to advices from the American Commercial Attache at Tokyo. During the first three months of the current year, wood pulp production by members of the Japan Paper Manufacturers' Association dropped off 2.1 per cent compared with the corresponding period in 1937.

Production in the first quarter of this year totaled 92,378 short tons of chemical pulp and 93,138 short tons of mechanical pulp, or a total of 185,516 short tons, compared with 96,902 short tons of chemical and 92,635 short tons of mechanical for a total production of 189,537 short tons in the similar period of 1937. The output during the first quarter of the current year was the smallest since the corresponding period of 1936, a reaction apparently resulting from the sharp increase in production during 1937.

First Quarter Imports

Wood pulp imports into Japan during the first three months of the current year comprised 20,347 short tons of pulp suitable for papermaking and 62,151 tons for the manufacture of rayon, a total of 82,498 short tons, contrasted with a total of 90,056 tons in the same time of 1937, and 88,506 tons in the first quarter of 1936. Imports of pulp into Japan from the United States in the first three months of the present year amounted to 34,941 short tons, against 59,174 tons in the preceding quarter, and 25,669 tons in the first quarter of 1937.

Don Guild Leaves Huntington

• Don Guild, for several years in charge of the technical and specialty departments of the Huntington Rubber Mills plant in Seattle, resigned the first of July and will shortly announce his future plans.

U. S. Pulp Imports At Low Point In April

● Imports of wood pulp into the United States during April went down to 67,985 short tons, all grades, valued at $3,454,287. In April of 1937 imports were 108,625 short tons of a value of $5,114,937, while in March, 1938, imports were 83,834 short tons valued at $4,117,749.

This year's April imports consisted of 23,165 short tons of unbleached sulphite valued at $971,403; 3,071 tons of bleached sulphite of rayon grade valued at $294,039 or an average of $95.75 per short tons; 17,198 tons of other bleached sulphite valued at $998,327 or an average of $58; 16,096 tons of unbleached sulphate valued at $674,897; 7,600 tons of bleached sulphate valued at $474,617 and 855 tons of soda pulp valued at $41,004.

B. C. Pulp Shuts Down Both Mills Temporarily

● Following swiftly after a period of unusually good promise, orders were given early this month by President Lawrence Killam for the shutdown of both Port Alice and Woodfibre mills of British Columbia Pulp & Paper Company.

"The closing is temporary, of course, and we hope that the market will improve sufficiently to permit resumption of operations very soon," Mr. Killam told Pacific Pulp & Paper Industry.

Both the Woodfibre and Port Alice plants were only recently converted for the purpose of handling increased tonnage of bleached sulphite and rayon pulp at a cost of $1,159,000 and it had been expected that the rising demand for these products would hasten a period of more profitable operation for the company. Last year's net profit of B. C. pulp was $225,011, compared with only $15,214 the previous year, and it was felt that the company had turned the corner. However, the Sino-Japanese war and the general business recession were eventualities that could not be foreseen when the expansion program was launched in the spring of 1937, and closing of the two plants was regarded as the only sensible thing to do in the circumstances.

The Port Alice plant at the northwest tip of Vancouver Island was closed a couple of weeks earlier than the Woodfibre plant, where extensive changes in equipment and mechanical layout to accommodate the new processes were only recently completed.

About 400 men were employed at the Port Alice mill, 300 at Woodfibre.

"Our decision is in line with the policy of pulp producers everywhere," said Mr. Killam. "Even in Scandinavia mills are operating on part time, and in eastern Canada and in the United States most of the mills are running on reduced schedules or entirely shut down.

● "Market conditions throughout the world are depressed, but we have been particularly hard hit by the collapse of the Japanese market, which for some time has been a profitable outlet for a large proportion of our output. The exchange situation and the difficulty of Japanese buyers to obtain import credits have made it virtually impossible to do business with Japan on a satisfactory basis."

General Electric Publishes Instrument Brochure

● "When You Can Measure," a 32-page brochure recently published by the General Electric Co., tells in brief the conrtibutions of General Electric engineers and scientists to the important art of measurement. This attractive, beautifully printed publication describes in pictures and in words the story of how instruments are designed, constructed and tested in the "headquarters for electrical measurement."

Every development in electricity has grown out of experiments in which instruments played a major part. The incandescent lamp, the electric motor, electric household appliances, radio—none of these commonplaces of modern living would have been possible without the imposing array of ingenious, sensitive, accurate measuring devices engineers have perfected.

Since measurement, in its final form, depends upon comparison with some carefully chosen standard, a section of the booklet is given over to a description of the Company's standards of voltage, resistance, time, and temperature.

Fir-Tex Reports Loss in 1937

● The Fir-Tex Insulating Board Company of St. Helens, Oregon, recently reported that operations during 1937 resulted in a loss of $86,508 after charges, as compared with a loss of $86,261 in 1936.

HONORING ISADORE ZELLERBACH some 600 employes of the Crown Zellerbach Corporation and its affiliated companies in the San Francisco Bay area gathered for a banquet May 17th to celebrate Mr. Zellerbach's FIFTY YEARS OF SERVICE.

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In the sorting room at the Kenwood Mills, fleeces are broken down by the skilled fingers of a group of craftsmen with 362 years of combined experience. One man has been sorting wool for 35 years, two for 29 years, another for 21 years. The average experience of all Kenwood wool sorters is 17 years.

Such craftsmanship is typical of the skill that enters into the many steps in the making of Kenwood felts. This traditional craftsmanship in every operation has made Kenwood the largest manufacturer of papermaker's felts in the world. It is ceaselessly applied in making better felts for you.

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Trade Talk

of Those Who Sell Paper in the Western States

Bonestell Moving in August

● Bonestell & Co., pioneer San Francisco paper jobbers, expected to move in May from their present First Street location to a new establishment around the corner on Howard Street, but they won't move until August. Work on the approaches to the new San Francisco bay bridge railroad terminal has clogged the rear entrance to the Bonestell establishment and they can't get in until the scaffolding and other obstacles are cleared away.

Megel Resigns Presidency of Paper Mill Men's Club

● G. D. "Dewey" Megel, president of the Paper Mill Men's Club of Southern California, due to the press of personal affairs was forced to resign the presidency of the organization. A meeting was scheduled for July 8 to determine the succession of officers following this sudden development. Mr. Megel is a charter member of the group and served as treasurer during the first year of the club's existence. His untiring efforts were instrumental in building the organization to its present stature.

Wieman Heads Paper Mill Men's Club

● With the resignation of Dewey Megel from the presidency of the Paper Mill Men's Club of Southern California due to the transfer of his business activities from Los Angeles to San Francisco, the organization met to determine whether the remaining officers should be moved forward to fill the vacancy and a new treasurer elected, or an entire new board should be elected. At the session, which was held July 8 at Clemente's Restaurant in Los Angeles, following dinner it was voted to move the remaining officers forward and elect a new treasurer.

George Wieman, formerly vice-president, became president, Al Hentschel moved from secretary to vice-president, Fran Jenkins from treasurer to secretary, and Charles Spies was elected treasurer to fill the post thus vacated.

The committee for the 1938 Hi-Jinks was also appointed and announced at this meeting. Charles Spies is the general chairman. Vice-chairman and coordinator is Tom Lyons. Committees and committee heads are as follows: Finance—Louis Wanka, director; Harry Fields, Fran Jenkins; Eenterainment—G. N. Madigan, director; Arthur L. Fox, Edward N. Smith; Golf—A. A. Ernst, director; L. W. Lamboy, Frank R. Philbrook; Door Prizes—Kenneth R. Ross, director; H. F. Rottler, Robert S. Morrill; Sweepstakes—W. A. McBride, director; A. C. Hentschel, Wm. Heitman; Program and Invitations—Roy J. Gute, director; Lester E. Remmers, A. Bruce Swope; Softball Game and other Sports—S. R. Whiting, director.

The date for the Fourth Annual Fall Hi-Jinks was set for October 7. The place it will be held at was tentatively set at the Riviera Country Club. Committees are going ahead immediately with plans to make the party an even greater success than those of previous years.

● The Consolidated Paper Manufacturing Company of Los Angeles, Sam Abrams president, was invited to become a member of the club and accepted the invitation.

Following the dinner and business meeting the customary after dinner sports ensued. More than thirty members were in attendance at the meeting.

Rayno Passes in Yakima

● Clyde Rayno, representative of the Crown Willamette Paper Company, division of Crown Zellerbach Corporation, in Yakima, Washington, important fruit district, died suddenly June 19th from a heart attack.

Mr. Rayno had been with Crown Zellerbach for about 15 years, and was well known in the Washington fruit growing area. He was employed at the Camas mill in the order department for some time before returning to Yakima, which was his home town.

At the time of his death he was 39 years old and he left a wife and two children.

Carl Johnson, who has been in charge of the order department of the Portland office, and in charge of Portland sales, has gone to Yakima to take over the work of Mr. Rayno.

Keith Aslin, from the order department in the Camas mill, replaces Mr. Johnson in the Portland office.

General Paper Busy in June

● "General Paper Co. had a surprisingly good month in June," says Harry Bean, San Francisco, general manager of that jobbing concern. "The month started slow but sure finished up with a bang. And a big part of our volume was mill business, which means orders big enough to be shipped direct from the mill to the customer."

Watson Honored by Ad Club

● Reeves Watson, advertising manager of Blake, Moffitt & Towne, San Francisco, has been elected to the board of directors of the San Francisco Advertising Club. Another paper man on the board is Charles Pritchard, sales manager of Bonestell & Co., who was elected last year.

B. M. & T. Open Reno Office

● Blake, Moffitt & Towne, San Francisco, Pacific Coast paper jobbers, have been serving Nevada for forty-five years through their Sacramento division but never have had an office in that state.

Now they have a Reno office, opened in June under the direction of J. H. Leatherman, manager of the Sacramento division. In charge at Reno is J. N. Moore, who has been with BM&T for 14 years and who has been resident salesman in the Nevada metropolis 18 months.

Frozen Foods Using More and More Paper and Board

● The steady development of the frozen foods industry on the Pacific Coast is creating new markets for board, paper and transparent cellulose films.

The Western Canner & Packer, published in San Francisco, recently published frozen food pack figures for Washington and Oregon compiled by the Northwest Frozen Foods Association. In 1937, 18,352,578 pounds of frozen vegetables were packed in the two states against 12,570,000 pounds in 1936. In addition 90,643 dozen ears of corn were packed in 1937.

The Washington and Oregon frozen fruit pack for 1937 was 52,296,354 pounds compared with 46,748,677 pounds in 1936. Fourteen varieties of vegetables were packed and twenty varieties of fruit.

The growing popularity of frozen foods is due to improved freezing processes and to better methods of packing. The average vegetable package for home consumption consists of a coated board box, cellophane envelope containing the vegetable, and an outer wrap of waxed paper or waxed parchment paper.

Swain Recovering from Illness

● Roy A. Swain, Pacific Coast representative for the L. L. Brown Paper Company, was recently taken ill with bronchial pneumonia. He will be convalescing for more than a month longer. Mr. Swain makes his home in Monrovia, Calif.

Everett's New CaCo3 Bulletins

● The Everett Pulp & Paper Company is employing four color process plates to demonstrate the printing qualities of its new Symphony Super Book, a calcium carbonate filled sheet. Two of the series of color mailings have already been mailed to jobbers, salesmen and printers.

Colton's "Temporary" Job Has Lasted 40 Years

Louis A. Colton Celebrates Long Period of Service With Zellerbach Paper Company

● On June 6 1898, a boy in his very early twenties went to work on a cutting machine in the paper jobbing establishment of A. Zellerbach & Sons at San Francisco.

It was only a temporary job, to last a week. At the end of the week, the boy went to Isadore Zellerbach and asked if he was through. He had been working at the Goodman-Levison Printing Co for $8.00 a week and had quit his job there to take a trip to New York on $150 he had saved up. He had filled in on the cutting machine at Zellerbach's for the extra $12.00 it would bring him for the week's work.

"No, you come back next week," Isadore Zellerbach told him.

The boy worked another week on the temporary job and then went to Mr. Zellerbach again and asked if he was fired.

"No, you come back again next week," Mr. Zellerbach said, waving him away, "don't bother me. We've got another job for you and when I want to fire you, I'll fire you!"

That was forty years ago and that boy was Louis A. Colton, now vice-president and director of the Zellerbach Paper Co., in charge of its purchasing department.

● "You know," Mr. Colton said this month, "they haven't told me to this day that my job was to be permanent. Isadore said he'd fire me when he got ready, but he hasn't fired me yet!"

Louie says he graduated from the cutting machine to be a stock clerk and then put on Abe Neumann's old coat and appointed himself a salesman.

"I hold two distinctions in this company," he says, "I was the first outside salesman for the Zellerbachs and the first salesman to have a desk. All the salesmen used to stand at high desks writing orders. But I got a desk and could sit down."

In 1910 Mr. Colton went to Portland to take charge of the Zellerbach division created there when the company bought out the former

LOUIS A. COLTON
Vice-President
Zellerbach Paper Co.

Pacific Paper Co. He was there for three years and in 1913 was made head of the firm's new division of purchasing at San Francisco. In 1925 he was made a director of the company and in 1930 was elected vice-president.

"Isadore Zellerbach attended my wedding," Mr. Colton says, "and later gave jobs to the four offspring of that marriage!"

Louie has three sons and one daughter. All his sons are in the paper business and his daughter, Miss Maria Celeste Colton, has worked at the Zellerbach office in San Francisco.

● His son Edgar is now with the J. E. Linde Paper Co., New York jobbers. Joseph A. Colton is with the General Paper Co. at San Francisco and a third son, Arthur H. Colton is the San Francisco representative of the Western Paper Products Co.

Louie Colton lived through the stirring days of the San Francisco fire of 1906.

"When the fire started, we had paper stored in eighteen different places in San Francisco and sixteen of these buildings were destroyed. One of these two buildings was at 405 Jackson Street.

"We set up our headquarters over in Oakland and three days after the fire I came over to San Francisco and got my brother Milton out on a bicycle rounding up the help. Nine days after the fire started we were doing business again in San Francisco. I got a piece of chalk and wrote out the name, 'A. Zellerbach & Sons' on the door of the store room at 405 Jackson and that was our sign."

In his office today Mr. Colton treasures the cane of the late A. Zellerbach, founder of the firm.

This spring Mr. Colton took his usual trip east and was a spectator at the automobile races Memorial Day at the International Speedway at Indianapolis. "That track," he says, "was two and a half miles long and the race was for 500 miles and those machines made it in 117.7 miles an hour, which is just a shade under two miles a minute! Too fast for me!"

Mr. Colton adds a 40-year diamond to his service pin this month.

Crown Zellerbach Buys Portland Building

● The Crown Zellerbach Corporation has purchased extensive property in Portland which will be occupied by the Zellerbach Paper Company, it has been announced by W. D. McWaters, Portland manager for the wholesale paper concern.

The property covers a half block on the east side of N. W. Fifth avenue between Davis and Everett streets, and includes the seven story building formerly occupied by Mason-Ehrmann & Co. It is understood the cash transaction involved approximately $100,000.

The building covers a quarter block, and adjoins another quarter block on which a two-story and basement concrete fireproof warehouse is to be constructed. The ground floor will be used for garage and shipping quarters.

Handling the transaction for the company were A. E. Breyman and Isadore Zellerbach of San Francisco, and J. R. Frum and W. D. McWaters of the Portland office.

Standard Paper Holds Picnic

● Salesmen and executives of the Standard Paper Company of Tacoma were guests at a picnic held at President Roy Davidson's home on Saturday, July 16th.

Imports of Newsprint by Argentina and Uruguay

● The requirements of the Argentine newspaper publishing industry continue to be supplied exclusively by imports. During 1937 185,978 short tons of newsprint were imported into Argentina as compared with 163,442 tons during 1936, an increase of roughly 13.8 per cent. Canada maintained its position as the chief source of supply, followed by Finland, Norway and Sweden, in the order named. Germany's share in this trade is still on the decline although the drop was not so sharp in 1937 as in the preceding year. (Office of the American Commercial Attache, Buenos Aires.)

● Imports of newsprint paper into Uruguay during 1937 totaled 12,815 metric tons, as against 13,223 tons in the preceding year. The trade in 1937 was more evenly divided between Canada and Norway, each of which supplied 5,000 tons, than in 1936, when the former supplied 7,531 tons and the latter 1,540. Sweden's share last year—1,818 tons—was slightly higher than in 1936. Imports from the United States dropped from 604 tons in 1936 to 27 tons last year. (American Consulate General, Montevideo.)

Germans Developing Cellulose Can

● A large German canning establishment has succeeded in producing a satisfactory container for preserved foods from a transparent plastic material technically known as acetyl cellulose which is treated with oil lacquer, according to a report from the American Consulate at Leipsig, made public by the Seattle Office of the Bureau of Foreign and Domestic Commerce.

A feature of the new container contrasted with tin is its transparency which enables purchasers of foodstuffs to see what they are buying, the report states. The top and bottom of the new container is made of tin which provides it with the necessary stability so that it may be handled in the same manner as cans made entirely of tin, according to the report.

As the German canning industry used 133,000,000 containers in packing last year's crop of fruits and vegetables, for which tin had to be imported, it is not surprising that the use of this new container is being encouraged by German Government authorities in furtherance of the "Four Year Plan" of economic self-sufficiency, according to the report.

New Paper Mill For Peru

● Duty free entry has been granted by the Peruvian government on machinery and materials to be imported by the Sociedad Agricola Paramonga for use in the new paper factory to be erected by the company at Paramonga, Peru. The mill will utilize native Peruvian products as raw materials. Sugar cane bagasse is to be the principal base of the paper to be manufactured. Studies are being made with the view to eventually producing all kinds of paper, with the exception of newsprint. Wallboard also is to be manufactured.

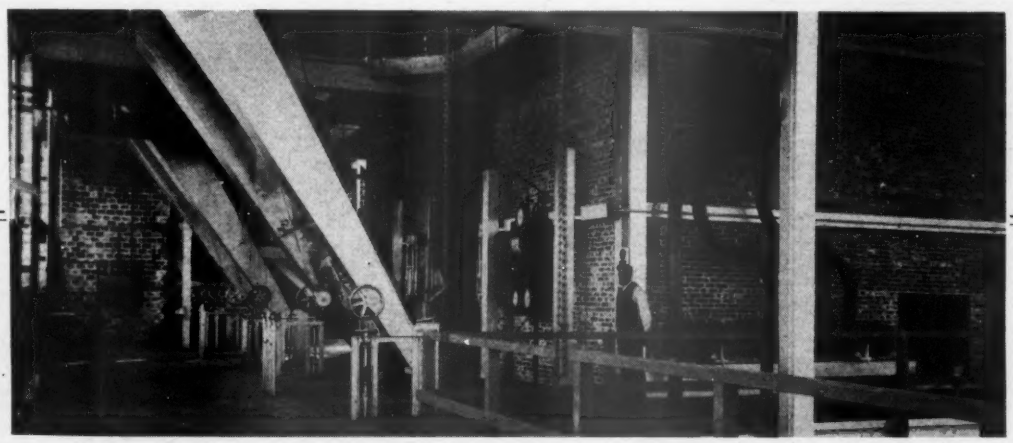
It is understood that, besides bagasse, other products, such as cotton waste, linters, stalks, and the many vegetable fibers that are found in Peru, will be utilized as prime materials. Bagasse, gypsum, waste paper, etc., will be employed in the manufacture of wallboard.

The items granted free entry as enumerated in the supreme resolution under review cover fifty-six classifications of materials and machinery with a value of $508,152.70, the countries of origin being the United States, Germany, Java, England and Belgium.

Actual production on a commercial scale will probably not begin until 1940. (Office of the American Commercial Attache, Lima.)

Pomona Installs New Stock Maker

● The California Fruit Wrapping Mills of Pomona has installed a new Morden Stock Maker. The new unit went into operation the second week of July. It is installed in connection with the No. 1 machine and is expected to considerably increase the beating capacity. If the unit meets the anticipated requirements, a second stock maker will be installed in connection with No. 2 machine.



Babcock & Wilcox Stirling Boiler Units Installed for the Puget Sound Pulp & Timber Company at Bellingham

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IT'S A JOB FOR CRODON PLATE

CRODON-plated flat screen plates installed at Bellingham mill of Puget Sound Pulp & Timber Co.

In the making of fine pulp and paper *approximate* accuracy just won't do. Experience and expert craftsmanship are essential. CRODON-plated screen plates certify exact slot size control, long screen plate life, and trouble-free screening operations.

That's why **Puget Sound Pulp & Timber Company's new unbleached sulphite pulp mill at Bellingham is completely equipped with CRODON-plated flat screen plates.** ***That's why*** **quality-conscious and efficient West Coast mills —Puget Sound, Weyerhaeuser, Soundview, St. Regis, and others—specify CRODON.**

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PULP BLEACHING COMPANY

ORANGE
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●

CELLULOSE PURIFICATION

Swedish Pulp Exports Down 8.4%

● Exports of wood pulp from Sweden in the first quarter of 1938 were down 8.4 per cent or 26,313 metric tons below the 313,567 metric tons exported in the first quarter of 1937. The exports for the first quarter this year were 287,254 metric tons and consisted of 76,643 tons of bleached sulphite, an increase of 308 tons over the exports of this grade in 1937 quarter; 111,710 tons of unbleached sulphite, a decrease of 12,724 tons from the 124,434 tons exported in the first three months of 1938.

Bleached sulphate exports in the first quarter were 14,667 tons or 285 tons more than the 14,372 tons exported in the same period of 1937; while unbleached sulphate pulp exports dropped 14,192 tons to 84,234 tons in the first quarter of this year from the 98,426 tons in the first quarter of 1937.

Exports of mechanical pulp from Sweden in the first quarter of this year were 40,240 tons against 43,870 tons in the same 1937 period.

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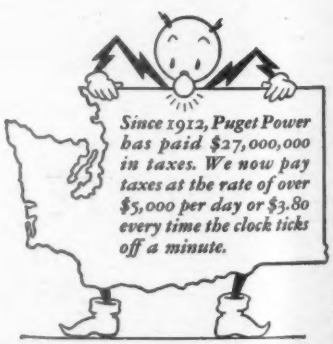
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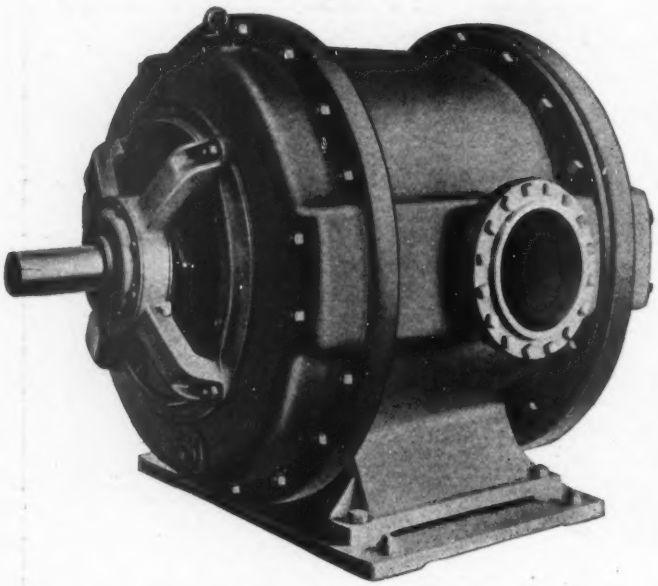

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Obstruction of Lines—stock and white water lines

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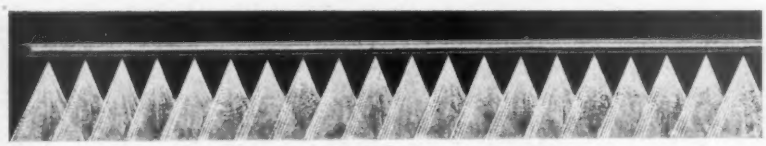

Angle of jet about 45° — nozzles spaced for either single or double coverages
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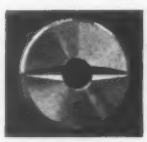
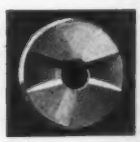


Outer face



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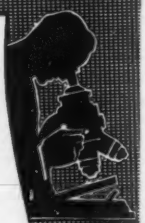

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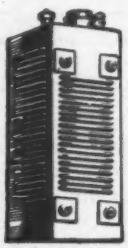

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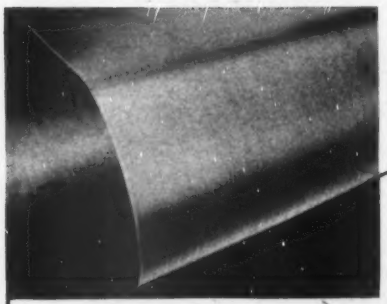

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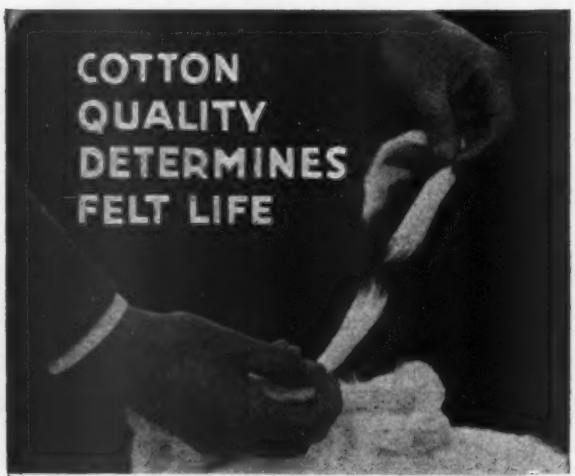

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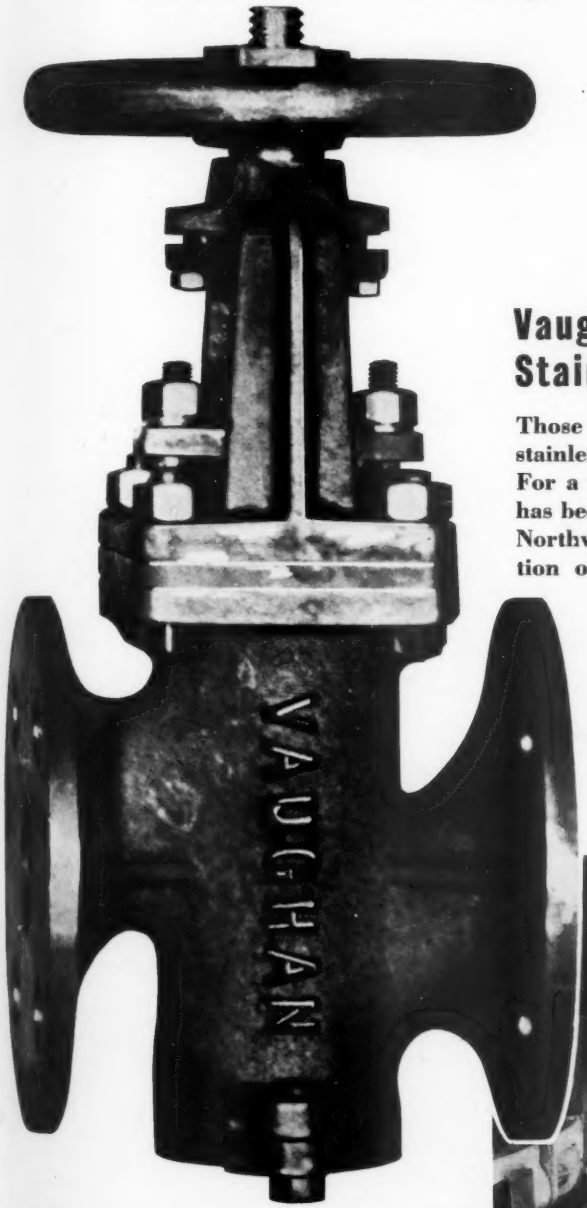

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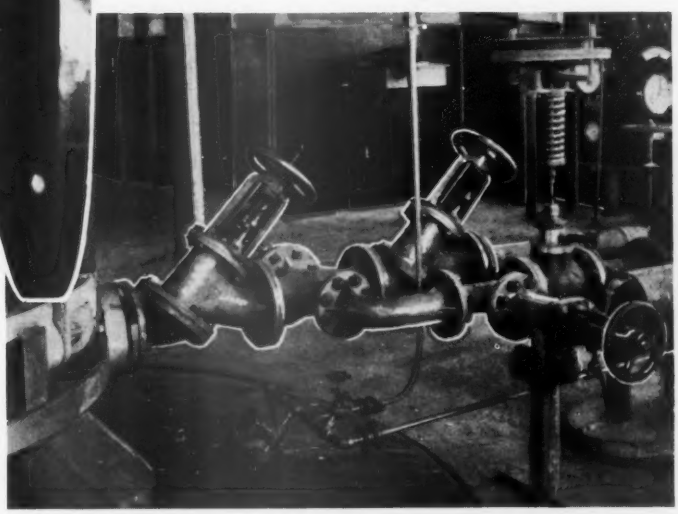

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